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UNIVERSITY OF ALBERTA

THE HEALTH PROBLEMS AND HEALTH CARE UTILIZATION PATTERNS
OF WIVES WHO ARE PHYSICALLY AND/OR PSYCHOLOGICALLY ABUSED

BY

PAMELA A. RATNER

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF NURSING

FACULTY OF NURSING

EDMONTON, ALBERTA

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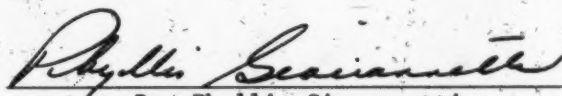
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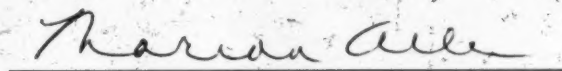
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DEGREE OF MASTER OF NURSING.


Dr. Phyllis Giovannetti


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Dr. Patrick Hessel

Date: April 12, 1991

*In memory of my mother
whose death led me to nursing
and whose life taught me to care.*

ABSTRACT

A survey was undertaken to determine the incidence of wife abuse and to determine whether there is a relationship between the type of abuse women experience and their reported health problems and health care utilization patterns. The population was women, 18 years of age and older who were living with, or in the previous year had lived with, a male partner. A sample of 406 women was obtained by employing random-digit dialling.

The incidence rate of physical abuse experienced by wives was found to be 10.7 per 100 women. An additional 15.6 per 100 wives were found to be severely psychologically abused. Demographic factors such as marital status, age, length of relationship, partner's employment status and household income were found to be related to abuse, but women of all ages, income levels and education levels were found to experience physical and/or psychological abuse.

Physically abused women were found to have more health problems than non-abused women, including more bruises, lacerations, and sprains or strains. Physically abused women were found to have more somatic complaints, higher levels of anxiety and insomnia, greater social dysfunction and more symptoms of depression than non-abused women. Severely psychologically abused women also had more mental health symptomatology than non-abused women, although their scores were not as high as those reported by physically abused women. Alcohol dependency was found to be associated with abuse with 16.3% of physically abused women and 10.7% of severely psychologically abused women alcohol

dependent. Finally, chronic pain was a significant problem for physically abused women.

As a result of multiple health problems the consumption of health care is greater in physically abused women than in non-abused women. More physically abused women were found to utilize emergency rooms, walk-in clinics, public or community health nursing services, in-patient hospitalization, and psychiatric and psychological care than non-abused women.

Wife abuse is a public health problem of significant proportion. Health professionals must acknowledge the role that they can play by accurately identifying abused wives, by identifying the underlying cause(s) of their health problems, by assisting them with their health care concerns, and referring them to appropriate social, legal and criminal justice services.

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This study would not have been possible without the cooperation of the women of Edmonton. I owe an inestimable debt of gratitude to the women who answered their telephones and so generously revealed very personal aspects of their lives and in particular, to those who were asked to recall very painful experiences. I can only hope that the information they provided might be used to help other women in the same position.

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CHAPTER I

INTRODUCTION

The abuse of women by their husbands is not a new phenomenon, indeed women have experienced abuse at the hands of their partners for centuries. What is new is the public's awareness of wife abuse. In the past two decades the public has become aware that wife abuse is a significant societal problem. A great deal of sociological research on wife abuse has now taken place. We now know something of the prevalence of wife abuse, particularly in the United States, and about some of the dynamics of abusive relationships. However, much of the research to date has focused on the causes of abuse; we know little of the consequences.

Background of the Problem

Wife abuse, defined as the physical and/or psychological assault of a woman by her husband (including common-law relationships) is a significant and complex social problem. It appears that it is also a significant health problem. There is mounting evidence to suggest that women who are abused suffer from multiple physical and psychological health problems and, as a result, are frequent consumers of health care services. However, some investigators have suggested that health care professionals fail to identify women who are abused and fail to fully meet their health needs. Despite the recent development of educational programs and identification protocols designed to assist health care

professionals in the identification of women who are abused, the success of these interventions remains questionable (McLeer & Anwar, 1989; McLeer, Anwar, Herman, & Maquiling, 1989; Tilden & Shepherd, 1987).

The existing research in the area of abused women's health problems and health care utilization patterns has mostly been descriptive or exploratory in nature and has generally occurred in emergency shelter or hospital emergency department settings. It is not known if the women who utilize these services are representative of all women who are abused. Further, the research has solely focused on the consequences of physical and/or sexual abuse; the consequences of ongoing psychological abuse have not been examined. Finally, non-probability convenience sampling has been widely utilized with reference to comparison groups and representativeness of the sample rarely considered.

As a result of the limitations of the existing research, little is known of the nature and frequency of abused women's health problems and health care utilization patterns, particularly within the Canadian context. Moreover, it is not known if the health problems and health care utilization patterns of women who are psychologically abused differ significantly from women who are physically abused or who are free from abuse.

Several authors have suggested that health care professionals do not respond in an effective and systematic manner in order to identify women who are abused (Kurz, Olsen, Flaherty, & Wilcove, undated; McLeer & Anwar, 1987; Ontario Medical Association Committee on Wife Assault [OMA], 1988; Tilden & Shepherd, 1987). Further, it is recognized that women who are abused often are reluctant to identify themselves as

victims of abuse. Although this reluctance is not well understood, it, in part, appears to result from a fear of retribution from the abusive partner, shame, embarrassment, and a perception that health care professionals do not care (Drake, 1982; Goldberg & Carey, 1982; Kurz et al., undated; Tilden & Shepherd, 1987). Accordingly, several authors have advocated the development and implementation of identification protocols that can be utilized by health care professionals, particularly in the hospital emergency department setting (Blair, 1986; Goldberg & Carey, 1982; Kurz et al., undated; McGrath, Schultz, Culhane, & Franklin, 1980; McLeer & Anwar, 1987; OMA, 1988). These protocols are generally designed so that an index of suspicion is raised when health care professionals encounter women with specific traumatic injuries. However, in light of the fact that Canadian women may suffer from less severe forms of violence than their American counterparts (Kennedy & Dutton, 1987, 1989) and appear to suffer less severe injury (Kerouac, Taggart, Lescop, & Fortin, 1986; Nuttall, Greaves, & Lent, 1985), the screening programs developed by American health care professionals may not be the most appropriate or effective within the Canadian context. Accordingly, Canadian health care professionals must gain a better understanding of the health problems and health care utilization patterns of women who are abused. Only with this understanding can effective screening and intervention programs, designed to meet the needs of women who are abused, be developed and implemented.

By any definition, there is a substantial number of women who have faced, and will face, health problems associated with physical abuse. It seems particularly important, at this time, to move forward to a

greater understanding of the health problems and health care utilization patterns of this population and to determine the health status of women who are psychologically abused by their male partners.

Scope of the Problem

It is recognized that a wide range of definitions of wife abuse have been employed by researchers, service-providers, and policy-makers. Further, terms such as woman abuse, spouse abuse, wife assault, family violence, domestic violence and woman battering have been found to be used interchangeably. Although the term "battering" seems to be favoured in the literature, it is generally associated with physical violence. The definition utilized in this study emphasizes the multifaceted nature of the abuse wives experience by recognizing that psychological assault is a central element of abuse. At the same time, however, the definition limits the type of assault women may experience to physical and/or psychological in nature; sexual and economic abuse are not included, nor is the abuse associated with the enforced witnessing of violence against others.

It is further recognized that while some men are abused by their female partners, it is believed that "husband abuse" is not sufficiently similar to the abuse wives experience to warrant its inclusion in a more general definition of "spouse abuse" (MacLeod, 1987). If women are abusive it is more likely to be against a violent partner than a nonviolent one, and motivated largely by self-defense (Saunders, 1986). Further, husband abuse has been found to result in less serious injury

than does wife abuse (Berk, Berk, Loseke, & Rauma, 1983; Pagelow, 1984) and engenders less fear (O'Leary & Curley, 1986).

Statement of the Problem

The abuse many wives experience within their marital relationships has recently emerged as a recognized social problem. As a result, we have witnessed the development of a large social science literature. However, focusing upon the social context within which wife abuse occurs diverts attention from the severity of the violence many wives experience and results in a failure to recognize the extent of the physical and psychological injury associated with abuse (Hatty, 1987).

Several authors have suggested that health care professionals, in particular, have had their attention diverted and have failed to provide appropriate health care to women who are abused, perhaps because they are educated to deal with problems of physical or sometimes psychosomatic etiology and not of social etiology (Dobash & Dobash, 1979; Stark, Flitcraft, & Frazier, 1979; MacLeod, 1980). One consequence of this misdirected attention is a lack of knowledge about the health problems and health care utilization patterns of women who are abused.

Health care professionals can play an important role in assisting women who have been abused obtain optimal health. However, effective screening and intervention programs can only be developed and implemented if a sound understanding is acquired of the health problems and health care utilization patterns of women who are abused.

CHAPTER II

REVIEW OF THE LITERATURE

The foci of the following literature review are the prevalence of the abuse of wives in Canada, the health problems of women who are abused by their male partners, and the health care utilization patterns of women who are abused by their male partners. For the purpose of this review, the author undertook a survey of the descriptive and empirical literature. The pertinent literature in the disciplines of nursing, medicine, psychology and sociology, published between 1970 and 1990, was identified by computer and manual searches. In addition, selected works published prior to 1970 were identified. Over 200 articles, reports, texts, dissertations, and theses were initially reviewed. Close to 75% of this literature was identified as non-research based and for this reason has not been included in this literature review. Criteria for inclusion of an empirical work in this review were that it must: (a) be focused on some health-related aspect of the abuse of women, or on the prevalence of the abuse of women in Canada, (b) be written in or translated into English, and (c) include information on the methods and procedures for data collection. No attempt was made to include the literature which focused on the responses of health care professionals to women who are abused or on abused women's perceptions of health care services.

This literature review is divided into four major sections. First, pertinent conceptual issues which pervade the research literature

regarding women who are abused are delineated. Second, the prevalence of the abuse of women in Canada is addressed. The final two sections provide critical assessments of the research related to the health problems and health care utilization patterns of women who are abused.

Conceptual Issues

The most common conceptual problem related to research on the abuse of women is the ambiguity in definition of terms. Investigators have tended to use the terms battered women, victims of violence, battered wives, and abused women interchangeably. Unfortunately, consensus has not yet been achieved as to what constitutes the abuse of women. The vast majority of investigators have confined the use of the term "abuse" to those women who experience physical violence. MacLeod (1987) suggested that the emphasis on physical violence has been valuable because it is through physical abuse that women who are abused can most readily be identified. She noted, however, that since the early 1980s, there has been almost universal concern that the abuse of women be understood in a more multifaceted way. Accordingly, current definitions of wife abuse, as expressed by policy-makers and service-providers, acknowledge that assaultive behaviour can take many forms, including physical, psychological, and sexual abuse. Yet, little evidence was found to suggest that researchers in nursing or other health-related fields have followed this trend.

Although the majority of investigators have limited their research to women who have experienced physical abuse, there is a lack of

agreement on what constitutes physical abuse. Many have failed to operationalize the concept and have simply allowed subjects to determine if they have or have not been physically abused. The relationship of the woman to her abuser also differs from one definition to another. Some investigators have confined their definition of wife abuse to women who experience physical abuse at the hands of a male partner with whom they are sexually intimate. Most have included marriages and common-law relationships within that definition, but others have included boy-friends who do not necessarily share a common residence with the woman. One group of investigators included any close male relative in their operational definition (Brismar, Bergman, Larsson, & Strandberg, 1987). Finally, investigators have defined wife abuse on the basis of when the physical abuse occurred and the number of batterings sustained. Some have defined women as abused if physical abuse has occurred at any time in their past, whereas others have limited their definition to physical abuse occurring in the preceding month or year.¹

In summary, comparison of studies of women who are abused is difficult because of the lack of agreement among researchers on how to classify women according to the abuse they experience. The ambiguity in definitions of wife abuse is a problem which, when coupled with numerous other methodological issues, limits the contribution that can be made to our knowledge of the subject.

¹It should be noted that one "standard" definition may not be reasonable for all situations, but the specification and elaboration of the components included in definitions of wife abuse are necessary so that meaningful comparisons across studies can be made.

Prevalence of Wife Abuse in Canada

The prevalence of wife abuse in Canada is frequently reported as involving one woman in ten, married or living with a male partner (House of Commons Standing Committee on Health, Welfare and Social Affairs, 1982; Lewis, 1982; Morrison, 1988; Ontario Medical Association, 1988; Selkirk, 1987) and is usually attributed to the work of MacLeod (1980). This rate, however, appears to be an approximation based on the work of Handelman and Ward (1976) in which no actual victimization data were collected and at best is merely an estimate (Smith, 1987).

No national representative study of the prevalence of wife abuse in Canada appears to have been conducted and only three regional studies of the prevalence of wife abuse were identified. All three studies employed Straus's (1979) Conflict Tactics Scales which allows for some degree of comparison. Kennedy and Dutton (1987, 1989) surveyed a representative sample of 1,045 Alberta residents (including rural and urban) and reported an overall wife abuse rate of 11.2%. This rate was found to be identical to the American rate determined by Straus and Gelles (1986), who employed similar research methods. However, severe violence was reported less frequently in Alberta than in the United States. The reported rate of severe violence, as determined by Kennedy and Dutton, was 2.3% in Alberta, compared to 3.0% in the United States. Beatings and threats with knives or guns were reported only 25% as frequently as in the American sample and the use of a knife or gun was not reported by the Alberta sample. Wife abuse rates were found to be higher in urban settings (12.8% overall violence) than in rural settings

(8.3%). Differences were also noted between the two major cities in Alberta: Edmonton was found to have a rate of 14.1% compared to a rate of 11.6% in Calgary. No attempt was made to explain the difference in rates.

Smith (1987) conducted a telephone survey of 604 women in Toronto using a slightly modified version of the Conflict Tactics Scales (Straus, 1979). He found that 36.4% of women had been abused by a husband, partner, boyfriend, or date on at least one occasion in their relationship, 14.4% had been physically abused by their present or ex-husband or partner during the survey year and 5.1% had been severely abused. This was a marked increase from the rates Smith had obtained in a pilot study in the city of Toronto in 1985. At that time an overall rate of 10.8% was revealed. However, Smith believed that the difference was most likely a result of methodological changes in the second study.

Brinkerhoff and Lupri (1988) interviewed 562 couples in Calgary and used self-administered questionnaires. They reported an overall wife abuse rate of 10.3% and a rate of 4.8% for severe violence. The proportion of husbands reported to have threatened their wives with a knife or gun was six times that reported by Kennedy and Dutton (1987, 1989). The authors noted that these rates are considerably higher than those found by Kennedy and Dutton and by Straus and Gelles (1986) in the United States, but they could not determine if their higher rates were "real" or "artifacts" of their method. However, they raise the question of whether the reports based on self-administered questionnaires may have resulted in higher disclosure rates than the other studies; all of which required verbal responses. They also raise the possibility that

higher disclosure rates occurred because they interviewed both the husband and the wife in a family which may have added additional pressure for the respondent to acknowledge the abusive behaviour.

Straus, Gelles, and Steinmetz (1980) reported that wife abuse rates in the United States were remarkably stable from region to region. Why then is there such variation in the three Canadian studies? As Smith (1987) pointed out, caution should be employed when comparing abuse rates from different surveys. Although the studies all used the same measurement instrument, there were several variations in the methods employed. First, the target populations differ (city versus province). Second, different interview techniques were used (face-to-face versus telephone). Finally, the Conflict Tactics Scales (Straus, 1979) was administered in different ways (self-administered versus interviewer-administered) and to different subjects (males only versus females only versus an aggregate of males and females). These differences could account for some or all of the variations in the reported wife abuse rates.

Health Problems of Women who are Abused

The study of health problems of women who are abused, while encompassing the majority of attention in the health fields, has largely been piecemeal. Investigators have tended to confine their investigations to the topics of physical injuries, mental health problems, chronic health problems, or the specific case of pregnancy and the abuse of women. In most instances, attention has been paid to the

questions of prevalence, severity, and possible associations.

Physical Injuries

The physical injuries women sustain as a result of physical abuse were variables of interest in six descriptive studies. Appleton (1980) reported that of 30 abused women admitted to an emergency department in the United States, 83% demonstrated facial contusions and 20% had sprained ankles. Drake (1982), Gayford (1975), Rounsaville (1978) and Rounsaville and Weissman (1978) reported injuries of American abused women that were ostensibly more severe. These authors reported that the women who were abused in their samples suffered from a wide array of injuries, including fractures, particularly to the nose, ribs, jaw and arms, multiple contusions, lacerations, burns, and head injuries. Gayford reported that 21 of 100 abused women had experienced strangulation or suffocation attempts and nine women had been found unconscious. Both Drake and Rounsaville and Weissman reported that injuries frequently clustered about the head and neck area.

Kerouac et al. (1986) and Nuttall et al. (1985) studied Canadian samples of women who were abused. Nuttall et al. reported that of 301 abused women, 37% reported bruising and approximately 20% reported injuries severe enough to require medical attention, although the nature of the injuries was not described. Kerouac et al. found that one-third of 130 abused women had suffered bruises, lacerations, and bone fractures. As a result of the paucity of Canadian research, it cannot be determined if Canadian women suffer injuries to the same degree of

severity as their American counterparts. It should be noted, however, that neither of these groups of investigators reported injuries as severe as the American investigators.

All of these studies are limited in that comparison groups were not employed and the samples were relatively small. The samples were obtained from hospital emergency rooms, emergency shelters, and legal and social advocacy clinics. It is likely that many women who are abused never come in contact with facilities such as these, but seek aid elsewhere.

Stark et al. (1979) and Stark et al. (1981) compared the physical injuries of abused women and non-abused women in a hospital emergency department setting in the United States. The medical records of 2,676 women who sought aid for injuries during a one-year period were analyzed and classified. Based on the findings, the investigators concluded that abused women can be distinguished from non-abused women by the frequency, anatomic location, and type of injury. Abused women were reported to be injured three times as often as non-abused women. The physical sites of injuries tended to cluster around the head, face, throat, chest, and abdomen. In contrast, non-abused women were reported to experience injuries to the extremities or hip area. Injuries caused by physical abuse were likely to be abrasions, contusions, or pains for which no physiological cause could be determined, whereas non-abuse injuries were more likely to be sprains or strains. There was no significant difference found in the frequency of fractures, dislocations, and lacerations.

A major concern in this study relates to the reliability and

validity of the classification system used to distinguish abused women from non-abused women. Based on medical records, the investigators classified female patients into four categories: positive, probable, suggestive and negative for physical abuse. However, the criteria for classification were not specific and considerable discretion was left to the coder. Second, inter-rater reliability does not appear to have been established. Finally, the reliance on medical records, which may have been incomplete, is a significant limitation of the study.

Mental Health Problems

Attention has also been directed toward studying the mental health problems and self-abusive behaviours of abused women. Investigators have studied the extent to which abused women suffer from depression, suicide attempts, and alcohol and drug abuse.

Employing descriptive study designs, Gayford (1975) and Rounsaville and Weissman (1977-1978) interviewed abused women. Gayford reported that 71 of 100 abused women were taking antidepressants or tranquilizers. Forty-six women had sought psychiatric opinions, and 21 were told that they were depressed and were provided treatment. Rounsaville and Weissman administered the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977), a self-report depression scale, to 31 abused women. Eighty percent of the sample had moderate depressive symptoms with 20% having levels comparable to hospitalized patients. Diagnostic assessments were also made by the senior author, a psychiatrist, and 12% were diagnosed as overtly or

latently schizophrenic. Only 29% were reported to have no psychiatric diagnosis. However, no attempts to validate the diagnoses appear to have been made, and the CES-D has been recently superseded by other instruments that screen for depression (Bridges & Goldberg, 1989). In two community samples, the CES-D exhibited poor positive-predictive power (Myers & Weissman, 1980; Roberts & Vernon, 1983). Further, the women in this sample voluntarily sought psychiatric assistance and may not be representative of abused women in general.

Five studies were conducted in which the association between mental health problems and abuse was examined and comparative groups were employed. These studies were retrospective in nature, hence a temporal relationship between abuse and mental health problems could not be established.

Kerouac et al. (1986) administered three of the nine dimensions of the Symptom Check-List-90 Scale (SCL-90) (Derogatis, Lipman, & Covi, 1973; Derogatis, Rickels, & Rock, 1976) to 130 abused women. The findings were compared to the findings of a previous study of young women taken from the general population (Fortin, 1984). Of the three dimensions studied, anxiety, depression, and somatization, the abused women scored significantly higher, although the statistical test was undisclosed. It is not known if the use of only three of the nine dimensions of the scale would alter the psychometric properties of the instrument, however the validity of the nine dimensions has been successfully tested against the diagnoses of psychiatrists, and the influence on the dimensional scores of factors such as sex, social class and other confounding variables has been shown to be small (Thompson,

1989).

Hillard (1985) compared 81 pregnant and abused women with 247 pregnant, non-abused women. The abused women were significantly more likely to have reported problems with their "nerves," to have visited a physician, been prescribed medication, been hospitalized for the problem, and to have had a history of depression. The comparability of the study groups is questionable due to statistically significant differences in the demographic data. The abused women were older, had delivered more children, had less education, were poorer, and were more likely to be single; all factors which could negatively affect a woman's mental health.

The Minnesota Multiphasic Personality Inventory was administered by Domino and Haber (1987) to 20 abused women and 10 non-abused women presenting to a pain centre with chronic headache pain. The results revealed that the abused women had hypochondriasis, depression, and hysterical scale elevations which were clinically significant, compared to no clinically significant scale elevations in the non-abused group. The authors stated that the women ranged in socioeconomic levels which did not differ across the groups. Further, age and race were reported to be equally distributed across the groups. However, given the very small sample, it is likely that the use of Chi-square contingency tables for statistical analysis was inappropriate. The statistical tests of significance and confidence bounds were not disclosed.

In a retrospective cohort study, Bergman, Larsson, Brismar, and Klang (1987) compared 49 abused women who attended a Swedish hospital emergency room with 49 women admitted with injuries other than those

caused by physical assault. The investigators employed 24 items from the Comprehensive Psychopathological Rating Scale (CPRS) (Asberg, Perris, Schalling, & Sedvall, 1978) and the Montgomery-Asberg Depression Rating Scale (MADRS) (Montgomery & Asberg, 1979) and conducted medical record reviews and interviews. Twelve of the abused women and four of the controls had consulted a psychiatrist ($p < .05$). Seven abused women, compared to two controls, had been treated as inpatients on a psychiatric ward. Thirty-five percent of the abused women were rated as depressed, compared to 6% of the comparison group ($p < .001$). The subjects rated as moderately to deeply depressed were all women who had been abused.

The specificity and validity of the MADRS as a measure of the severity of depression has been confirmed (Kearns et al., 1982; Snaith & Taylor, 1985). However, the lack of comparability of the two groups (22% of the abused women were unemployed compared to 6% of the controls [$p < .05$]) and the small sample of abused women limit the validity of the findings. Further, one fourth of the comparison group had been assaulted by their present or former partner and three of the comparison group experienced repeated assaults. In a cohort study such as this, the major principle underlying the selection of the comparison group is that they should be as similar as possible to the group of interest except for the determinant under investigation (Hennekens & Buring, 1987). Clearly, these investigators violated this principle.

Jaffe, Wolfe, Wilson, and Zak (1986) focused on the emotional health problems of abused women by comparing the scores of 56 abused women with a group of women in the community, matched for income, length

of marriage, and number of children, on the General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979). They concluded that there was support for the hypothesis that abused women show clear mental health symptomatology in comparison to a control group. The abused women in the study had statistically significantly more somatic complaints, a higher level of anxiety, and reported more symptoms of depression. The subscale, "social dysfunction" was not found to discriminate between the two groups. This study was noteworthy in several ways. First, the employment of a comparison group, matched for socioeconomic background, enhanced the value of the study. Second, the GHQ is generally recognized as a valid and reliable screening instrument. Finally, the subjects were classified as abused on the basis of ratings of responses to the nine items of the physical aggression subscale of the Conflict Tactics Scales (Straus, 1979).

Despite the reported frequency of mental health problems associated with abuse, few investigators have studied whether abused women are at risk for suicide. Gayford (1975) reported that 50 of 100 abused women he interviewed had attempted suicide. Hillard (1985) reported that 20% of the 81 pregnant and abused women in her sample had attempted suicide, compared to 3% of the controls ($p < .001$). Finally, Stark et al. (1979) and Stark et al. (1981) reported that 26% of abused women, compared to 3% of non-abused women ($p < .001$) had attempted suicide. Moreover, they concluded that the risk of suicide increases after the onset of abuse. The limitations of these three studies were described previously.

Stephens (1985) interviewed 50 women who had attempted suicide. The subjects had been referred to the researcher from mental health

clinics, a psychiatric unit, psychotherapists in private practice, and in response to an article about the study published in a local newspaper. Twelve of the subjects (24%) had been in physically abusive relationships at the time of the suicide attempt.

Findings of studies of the frequency of alcohol and drug abuse in women who are abused are generally consistent, although Appleton (1980) did not find that abused women had an increased incidence of alcoholism. In a comparative study of 219 abused women and 401 control subjects, Appleton reported that 63% of the abused women and 60% of the non-abused women reported drinking occasionally, and 14% of each group reported drinking on a regular basis. On the other hand, Hillard (1985) reported a statistically significant difference between 81 abused women and 247 controls with regard to alcohol abuse. She did not find a significant difference for drug abuse.

Bergman et al. (1987) screened abused women for alcohol and drug abuse using the CAGE questionnaire (Mayfield, McLeod, & Hall, 1974) and the Ten Question Drinking History (Rosett, Weiner, & Edelin, 1981). The responses were evaluated by a panel and the women were classified as either high or low consumers of alcohol. Fifty-one percent of the abused women, compared to 28% of the controls were diagnosed as heavy consumers ($p < .05$) and 24% were diagnosed as alcohol dependent compared to 8% of the controls ($p < .05$). Further, the abused women were significantly more likely to be intravenous drug addicts (16% compared to 2% of the controls; $p < .01$).

In a second report (based on the same subjects) Bergman et al. (1989) added a third group: 49 female alcoholics who were receiving

treatment at an alcoholism unit. Of these 49 women, 63% had sought hospital treatment before for injuries from abuse, 81% had been beaten repeatedly and 50% had been seriously injured. As previously mentioned, the limitations of this study may severely limit the validity of these findings. Further, no conclusions about the temporal relationship between alcohol and drug abuse and physical abuse can be drawn. Stark et al. (1979) and Stark et al. (1981), however, also found that abused women had a significantly higher incidence of drug and alcohol abuse and their findings suggest that these problems often occur after the first incident of abuse.

Chronic Health Problems

Little research has been conducted to examine the relationship between chronic health problems and abuse. Haber (1985) and Haber and Roos (1984) reported that 53% of 150 women who presented to a chronic pain centre had a history of physical and/or sexual abuse. All of the abused women's problems with pain, including low back pain, headache and abdominal pain reportedly followed the first incident of abuse. Women with abdominal or vaginal pain of unknown etiology had the highest incidence of previous abuse. The authors cautioned, however, that a causal relationship could not be established.

Kerouac et al. (1986), in a descriptive study of 130 abused women's perceptions of their health, found that the most frequent health problems reported were insomnia, fatigue, disturbing physical sensations, anaemia, allergies, and arthritis. They reported that

almost 55% of the abused women perceived their health status as being excellent or good. Descriptive statistics were not provided and the findings were not compared with the health status of non-abused women.

Pregnancy

Researchers have also examined an association between pregnancy and abuse and several have suggested that women experience abuse at unusually high rates during pregnancy. Gelles (1975) was the first investigator to address abuse during pregnancy. Almost one-quarter of the violent families he interviewed reported abuse during pregnancy. Helton, McFarlane, and Anderson (1987) revealed that 8% of the women they studied reported abuse during their current pregnancy and 15% reported past histories of abuse, whereas Hillard (1985) revealed that 3.9% experienced abuse during their current pregnancy and 10.9% had experienced abuse in the past and were still in a relationship with the assailant. Pregnancy outcome was not investigated by Helton et al., but Hillard reported that no marked differences in outcomes were demonstrated in the women who were abused as compared to the controls. The comparability of the study groups in Hillard's investigation is questionable, however. Hillard acknowledged that the study groups differed significantly in terms of age, parity, education and financial status.

Drake (1982) reported that of 11 women who had been pregnant in her study, all had been abused while pregnant. Further, she reported that although a causal relationship could not be established, five of the

women experienced spontaneous abortions following a physically abusive event. Stark et al. (1979) and Stark et al. (1981) reported that abused women were more likely to be injured while pregnant and more likely to have a pregnancy terminated by therapeutic or spontaneous abortion.

Bullock and McFarlane (1989) examined the effect of abuse on pregnancy outcome in terms of birth-weight. They studied 589 postpartum women from one public and two private hospitals, 20.4% of whom had been abused. Overall, significantly more low-birth-weight infants were born to abused women (12.5%) than to non-abused women (6.6%) ($p < 0.05$). Interestingly, the abused women in this study reported less alcohol use than did the non-abused women, however the abused women smoked more than the non-abused women.

In contrast to the majority of investigators who have examined abuse and pregnancy, Gelles (1988) concluded that the relationship is spurious when one controls for age. In analyzing data collected from telephone interviews with 6,002 Americans, he found that women under the age of 25 were both more likely to be pregnant and to be abused by their husbands. Thus, he concluded that although pregnant women are not a specially vulnerable group, pregnancy does not protect them from the abuse experienced by other young women.

Health Care Utilization Patterns of Women who are Abused

No study was identified which focused specifically on the health care utilization patterns of abused women. Investigators have focused on the use of specific services, particularly hospital emergency

departments and family physicians. Eleven studies, when pieced together, can provide an emerging profile of the health care utilization patterns of abused women.

Two studies focused on broad aspects of the health care utilization patterns of abused women. Bowker and Maurer (1987) surveyed an American national sample of 854 abused women. Only 39% reported receiving help from physicians and/or nurses on at least one occasion. These investigators examined whether some abused women are more disposed than others to seek medical help. The pattern of all statistically significant correlations showed a weak but consistent tendency for health care utilization to be associated with higher than average socioeconomic status and religious participation. Employing a stepwise multiple regression, these investigators found that the most important predictors of health care utilization were number of marital separations, husband's education, suffering a miscarriage due to abuse and the severity of the violence (all were positively correlated with health care utilization). The data showed no strong racial or religious biases in the utilization of health care services. The authors concluded that the hypothesis that violence severity is associated with an increased probability of health care utilization was supported. This conclusion may be too strong given the acknowledged limitations of a nonprobability sample and the ordinality of many of the variables. The authors stated that the weak correlations reported should be taken as no more than a general indication of substantive significance.

Brismar et al. (1987) compared the consumption of health care in Sweden of 117 abused women with that of 117 age-matched controls.

Utilization of health care in the preceding 10-year period was found to be considerably greater in abused women. Sixty-one percent of the abused women had been admitted to hospital compared to 39% of the controls ($p < .01$). The consumption of care was most pronounced among women with suicide attempts and undefined disorders with diffuse symptoms. Consumption of psychiatric care also differed between the two groups. Whereas 21% of the abused women had been in-patients at psychiatric clinics on an average of 3.46 times, only one woman in the control group required such care ($p < .001$). Thirty-three percent of the abused women and 5% of the control group had received psychiatric outpatient treatment ($p < .001$). The data for the control group were obtained from computer files and medical records. One must question whether these sources were complete. Further, foreign-born women were more common in the abused women group. Although the authors suggested that the over-representation of foreign-born women in the abused group could indicate that immigrant women, because of social isolation or cultural conditions, run an increased risk of abuse, it is possible that foreign-born women are treated in a differential fashion.

Seven groups of investigators attempted to determine the proportion of abused women among women seeking hospital emergency department care (Appleton, 1980; Goldberg & Tomlanovich, 1984; McLeer & Anwar, 1989; McLeer, Anwar, et al., 1989; Rounsaville, 1978; Rounsaville & Weissman, 1977-1978; Stark et al., 1979; Stark et al., 1981; Tilden & Shepherd, 1987). These investigators employed self-administered questionnaires, interviews and medical record reviews. The results were equivocal. The estimates of the proportion of abused women of the total number of women

who seek emergency department care ranged from 3.8% to 35%. McLeer and Anwar (1989) noted that age was related to abuse with 42% of female trauma cases in the 18-20 year age span being abused; 35% of the women 21-30 years of age were abused as were 18% of injured women 61 years of age and older. These investigators were all faced with the difficulty of identifying abused women as many were reluctant to come forward and identify themselves. Although these investigators reported that a significant proportion of the women who visited an emergency department were abused, they found that a small minority were actually identified by the emergency department staff as evidenced by notations in the medical record. Rates of identification ranged from 4% to 15% (Brisman et al., 1987; Goldberg & Tomlanovich, 1984; McLeer & Anwar, 1989; McLeer, Anwar, et al., 1989; Rounsaville & Weissman, 1977-1978; Stark et al., 1979; Stark et al., 1981; Tilden & Shepherd, 1987). Only one attempt was made to determine if certain characteristics disposed abused women to identification. Goldberg and Tomlanovich reported that a significantly greater proportion of those identified sustained severe abuse.

Stark et al. (1981) examined the extent to which abused women utilize non-trauma health care resources. Their sample of 564 women who were positive, probable, or suggestive for abuse, were compared to 591 non-abused women. Of the two groups, 66% used the emergency medical service, yet abused women accounted for 78% of the total visits. The psychiatric emergency department service was used by five times as many abused as non-abused women. Of the 2,889 visits to the women's clinic, 77% were determined to be made by abused women. However, the

investigators concluded that abused women did not take advantage of the ongoing, continuing care clinic or the surgical follow-up clinic. This conclusion was based on data that revealed that abused women made 54% of the visits to the primary care clinic and 63% of the visits to the surgical clinic. Once again, however, questions regarding the reliability and validity of the classification system detract from these conclusions. Further, statistical tests of significance were not provided.

Appleton (1980) also found that women who were abused and who attended an emergency room had an incidence of psychiatric hospitalization almost three times that of the controls. And, Post et al. (1980) reported that 19 of 38 women admitted to an inpatient unit of a psychiatric hospital revealed that they had been abused by an intimate male partner.

McLeer and Anwar (1989) and Tilden and Shepherd (1987), employing one-group pretest-posttest designs, demonstrated that with the implementation of a protocol aimed at identifying abused women, the rate of identification could be increased from 9.7% and 5.6% to 23% and 30% respectively. The protocols contained questions which elicited trauma histories and directly asked if the women were injured by someone. Both groups of investigators utilized the Stark et al. (1979) classification system. However, a major threat to the validity of both studies was the threat of history, particularly as long time periods elapsed between periods of data collection. That is, events may have occurred between the first and second data collection periods, in addition to the implementation of the identification protocol, which may have confounded

the effect of the intervention (Campbell & Stanley, 1963). The demonstration of real effects is questionable, particularly in the Tilden and Shepherd study, where the post-test was completed in the four-month period immediately following the intervention. Finally, it is not known if the emergency department staff were aware of the chart review and analysis of identification rates.

Interestingly, McLeer, Anwar, et al. (1989) completed an eight-year follow-up study of the same emergency department used in the McLeer and Anwar (1989) study. They hypothesized that because a system for ensuring use of the protocol designed to identify abused women was not implemented, the rates of identification would have decreased considerably, perhaps to pre-protocol levels. As hypothesized, in the follow-up study only 7.7% of female trauma patients were diagnosed as having injuries that were due to abuse. The authors concluded that education programs and the availability of interview protocols are not sufficient for ensuring continued vigilance in detecting injuries caused by abuse. They called for ongoing advocacy and policies and procedures for diagnosing and treating victims of wife abuse.

Rounsaville and Weissman (1977-1978) interviewed 37 abused women. Seventy-six percent of those identified were interested in talking to a psychiatrist while in the emergency department. However, only 35% of the total group attended a follow-up appointment and only 11% became engaged in psychiatric treatment for more than one session. The investigators concluded that there is an inverse pyramid of abused women who actually become involved in psychiatric counselling and the great majority do not use mental health services. These conclusions are

rather strong in light of the small sample studied.

Little attention has been paid to the utilization of health services other than hospital emergency rooms. Bullock, McFarlane, Bateman, and Miller (1989) found that when "abuse-assessment" questions were added to the social history obtained from all clients attending Planned Parenthood Clinics in Texas, 8.2% reported being victims of physical abuse. Hopayian, Horrocks, Garner, and Levitt (1983) and Nuttall et al. (1985) examined abused women's utilization of family physicians. Hopayian et al. surveyed all women in 27 emergency shelters. Less than half of the shelters participated and only 72 of an unspecified number of questionnaires were returned, making it impossible for the investigators to calculate a response rate. They also surveyed 100 randomly selected family physicians and received a 49% response rate. Of the 72 abused women who responded, 89% had consulted their family physician at least once in the previous year. Seventy-five percent had seen their family physician with symptoms of psychological disturbance, including depression, "nerves," or insomnia. Thirty-eight percent reported that they had presented with physical injuries. Of the 49 family physicians who returned questionnaires, 76% reported having encountered abused women in their practice and only 30% reported that they had suspected abuse and asked the woman directly. This descriptive study had several limitations as a result of the small sample and the questionable response rates.

Nuttall et al. (1985) interviewed 301 abused women who sought assistance from an advocacy clinic regarding legal and social matters. A family physician had referred these women to the clinic in only 6% of

the cases, yet 55% had sought help from their family physician and 45% were seen in hospital emergency departments. In addition, the investigators interviewed 29 family physicians, 45% of whom reported that no cases of women who had been abused presented within their practices over the previous year. Of those who had treated an abused woman, 81% estimated that abuse represented less than 5% of their caseload. The remaining 29% estimated that cases of abuse represented between 6% and 10% of their caseload.

Haber (1985) and Haber and Roos (1984) concluded that the prevalence of abuse in women with chronic pain was much higher than expected a priori. Of 150 women who attended a chronic pain centre in an eight-month period, 53% admitted to physical and/or sexual abuse. Although the majority of abused women with chronic pain sought medical attention repeatedly, most had never discussed their abuse with a health care professional. The authors suggested that this same phenomenon may be found in similar proportions at other pain services.

SUMMARY

The abuse of women is a problem which clearly warrants the attention of health care professionals. The studies reviewed suggest that women who are abused suffer from multiple physical and psychological health problems. Further, there is evidence to suggest that abused women frequently utilize health care services, but are rarely identified as victims of abuse. If effective identification and intervention programs for women who are abused are to be established, it

is essential that an understanding of the health problems and health care utilization patterns of this group be ascertained.

The existing research in this area has mostly been descriptive or exploratory in nature and has generally occurred in emergency shelter or hospital emergency department settings. The researchers have solely focused on the consequences of physical abuse; the consequences of ongoing verbal or psychological abuse have not been examined. Finally, convenience sampling has been widely utilized with reference to comparison groups and representativeness of the sample rarely considered. Clearly, further research is required regarding the nature of abused women's health problems and health care utilization patterns, particularly within the Canadian context.

CHAPTER III

METHODS AND PROCEDURES

Purpose of the Study

The purpose of this study was to enhance our understanding of the health problems and health care utilization patterns of wives who are physically and/or psychologically abused. The following questions were addressed in this study:

- (a) Do women who are physically abused suffer health problems with greater frequency than women who are not abused?
- (b) Do women who are physically abused utilize health care services with greater frequency than women who are not abused?
- (c) Do women who are psychologically abused suffer health problems with greater frequency than women who are not abused?
- (d) Do women who are psychologically abused utilize health care services with greater frequency than women who are not abused?
- (e) Is there a difference in the frequency of health problems between women who are physically abused and women who are psychologically abused?
- (f) Is there a difference in the frequency of utilization of health care services between women who are physically abused

and women who are psychologically abused?

Definitions of Terms

Health Problems: Those conditions which impede or threaten to impede the attainment of an optimal level of physical or psychological well-being. These deviations from health will be identified by the sample in response to a structured questionnaire (see Appendices A, B, and C).

Health Care Utilization Patterns: Those activities which make use of health care professionals' services in order to gain help for health problems. These activities will be identified by the sample in response to a structured questionnaire (see Appendix A).

Psychological Abuse: The use of verbal and nonverbal acts which symbolically hurt another, or the use of threats to hurt another (Straus, 1979).

Physical Abuse: The use of violence in the form of bodily aggression; an act which threatens or causes physical injury to another person (Brinkerhoff & Lupri, 1988).

Wife Free of Abuse: A wife who is free of abuse is defined as a woman who has been exposed to no psychologically abusive events and no physically abusive events in the previous year as measured by the Conflict Tactics Scales (CTS) (Straus, 1979) and who has lived in a marriage-like relationship within the previous year (see Appendix D).

Wife Free of Physical Abuse: A wife who is free of physical abuse is defined as a woman who has been exposed to no physically abusive events in the previous year as measured by the CTS and who has lived in a marriage-like relationship within the previous year (see Appendix D).

Wife who is Psychologically Abused: A wife who is psychologically abused is defined as a woman who has been exposed to one or more psychologically abusive events in the previous year as measured by the CTS and who has lived in a marriage-like relationship within the previous year (see Appendix D).

Wife who is Severely Psychologically Abused: A severely psychologically abused wife is defined as a woman who has been exposed to ten or more psychologically abusive events in the previous year as measured by the CTS and who has lived in a marriage-like relationship within the previous year (see Appendix D).

Wife who is Physically Abused: A physically abused wife is defined as a woman who has been exposed to one or more physically abusive events in the previous year as measured by the CTS and who has lived in a marriage-like relationship within the previous year (see Appendix D).

Research Design

The design of this study was a cross-sectional survey; the purpose of which was to examine the relationship between the type of abuse women

experienced (i.e., no abuse, physical abuse, and/or psychological abuse) and their reported health problems and health care utilization patterns.

Sample

The population for this study was women, 18 years of age or older, who were married (including common-law relationships) and living with, or who in the previous year had lived with, a male partner in the greater Edmonton area, who could be contacted by telephone direct-dialling, and who could speak and understand English.

A probability sample was obtained using random-digit dialling. This approach allowed every working telephone number in the population an equal probability of selection. A list of 2,000 telephone numbers with Edmonton area exchanges was obtained from the Population Research Laboratory at the University of Alberta. The Population Research Laboratory generated sample telephone numbers by combining the use of telephone directories with the random assignment of digits. The generation of the telephone numbers consisted of three steps. First, all five-digit banks of telephone numbers, published in the "Edmonton Numerical and Street Address Directory," were identified and entered into a computer file. Second, a simple random sample (with replacement) of 2,000 numbers was selected. Finally, a two-digit random number between 00 and 99 was appended to each of the numbers to obtain a sample of seven-digit telephone numbers. Any duplicate numbers were removed. This approach allowed unlisted as well as listed numbers an equal chance of being included in the sample. Further, it reduced a large proportion

of numbers that were non-working numbers or that may have been assigned to businesses, thus the efficiency of the sample was enhanced (Lalu, 1991).

Based on Kennedy and Dutton's (1987) experience, it was anticipated that approximately 20-25% of the telephone numbers called would result in an inability to make contact, language problems, or refusals to participate. The Population Research Laboratory has found that generating telephone numbers in the manner previously described results in an efficiency rate of approximately 50% (i.e., excluding numbers not in service and screening out business numbers) (N. M. Lalu, personal communication, August 15, 1990). It was also anticipated that 60% of the working telephone numbers would belong to households where a married woman lived. Kennedy and Dutton (1987) reported that the incidence of wife abuse involving physical aggression was 14.1% in Edmonton. On these bases, it was estimated that a random sample of 2,000 telephone numbers would result in 400 completed interviews and that 55 women would report that they were physically abused by their husbands. The prevalence of psychological abuse was not known. It was assumed, however, that the remaining 345 women interviewed would be either psychologically abused or free from abuse. The size of these subgroups was considered sufficient for statistical analyses, although ideally a larger subgroup of physically abused women would have been preferred. However, due to limitations in time and financial resources, this study was limited to an overall sample of approximately 400 women.

The investigator interviewed a woman at the residence of the telephone number selected if the following criteria were met: (a) the

dwelling unit was the woman's usual place of residence, (b) she lived with, or in the previous year had lived with, a male partner, (c) she was 18 years of age or older, (d) she could speak and understand English, and (e) she consented to the interview.

Power

Power calculations were carried out prior to the commencement of this study in order to assess the adequacy of the anticipated sample size. Please refer to Appendix E for a discussion of power.

Instruments and Methods

The investigator used telephone interviews in which four questionnaires were administered. First, a questionnaire designed by the author to elicit the physical health problems, health care utilization patterns, and demographic characteristics of the sample was administered (see Appendix A).

The General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979) was administered to measure the mental health status of the sample (see Appendix B). The 28-item GHQ, consisting of four subscales (somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression) is perhaps the most widely used screening test for psychiatric morbidity in the community. It focuses on breaks in normal functioning and is concerned with a person's inability to continue with normal "healthy" functions and the experience of new phenomena of a

distressing nature (Bridges & Goldberg, 1989). Each item can be scored as a multiple-response scale or "Likert scale" and have weights assigned to each position (e.g. 0 to 3; 0 - not at all, 3 - much more than usual) or scored as a bimodal response so that responses in either the third or fourth column are scored as one while the others are scored as zero. The latter approach has the advantage of eliminating any error due to "end-users" and "middle-users" because they will score the same regardless of their preference. The number of items with a morbid rating are summed to give a total GHQ score.

The third questionnaire, known as the CAGE questionnaire for its key words (Cut down, Annoyed, Guilty, Eye-opener), is a brief alcoholism screening test (Ewing, 1984; Mayfield et al., 1974) (see Appendix C). It is generally recognized as the most widely used questionnaire in screening for alcoholism (Strang, Bradley, & Stockwell, 1989). The questionnaire consists of four questions of a non-incriminating nature and is a sensitive indication of covert problem drinking. A criterion of at least two positive responses was accepted as an indicator of alcohol dependency.

Finally, the Conflict Tactics Scales (CTS) (Straus, 1979) which is a self-report scale of psychological and physical aggression used or experienced in conflicts with a partner was administered (see Appendix D). It consists of 19 items and is designed to measure the use of reasoning, verbal aggression, and physical aggression within relationships. The items range in order of presentation as follows: the first three items have to do with reasoning, the next seven items deal with verbal aggression, and the remaining nine items describe acts of

physical aggression. Raw scores represent frequency ranges for each item and vary from zero ("never") to six ("more than 20 times"). Total scores for each of three subscales are derived by summing the raw scores for each of the items and can be used to identify if a woman is physically and/or psychologically abused or free from abuse by her husband.

The physical aggression subscale can be further divided into an Overall Violence Subscale and a Severe Violence Subscale. The Overall Violence Subscale includes all actions from throwing something at the wife to using a knife or gun against her. The Severe Violence Subscale includes the last six items: "kicked, bit or hit with a fist" up to "used a knife or gun." This distinction is made (most often by sociologists) because although any act from the Overall Violence subscale can constitute abuse, those actions most likely to cause injury and to lead to arrest for assault are from the Severe Violence Subscale (Kennedy & Dutton, 1989). It should be noted that the item "cried" on the verbal aggression subscale was omitted from the data analysis. The item was included in the scale because as Straus (1979) reported it was a "frequent response and...respondents became uneasy if there was no place to record ...[it]" (p. 80).

The women in the sample were telephoned and were interviewed if consent was provided. If contact was not made, the investigator attempted to make contact at varying times of the day and week. Each telephone number was dialled ten times before it was determined that no contact could be made. It was ensured that at least two of the ten attempts were made in each of four time periods (daytime during the

week, evening during the week, daytime during the weekend, and evening during the weekend). If the woman consented to an interview, but found the time of the initial contact inconvenient, a suitable time was established and the interview was conducted at that time. An introductory statement, including information about anonymity and confidentiality, was provided to the informants and then the interview was conducted. The interviewer read each question to the informant, allowing adequate time for response and restated questions as needed for clarification.

Pilot Study

The interview schedule, comprised of the four questionnaires, was pretested on 25 women in the population, selected by random digit dialling and who consented to participate. The progression and clarity of the questions and the time required for interview completion were evaluated by the investigator, based on the comments of the respondents. Very minor revisions were made to the questionnaire as a result of the findings of the pilot study. For example, the question regarding marital status was moved from the bulk of questions concerning demographic data to the beginning of the questionnaire. Other changes were made in order to facilitate coding and data entry. No substantive changes were made, hence the data obtained in the pilot study were included in the analysis of the entire data set.

Reliability and Validity

The questionnaire designed to elicit physical health problems and health care utilization patterns was assumed to have content validity because it arose from the research literature that was available on the topic of abused women's health problems and health care utilization patterns.

The 28-item General Health Questionnaire (GHQ) has been found to have a sensitivity of 84% (C.I. 77% - 89%) and a specificity of 82% (C.I. 78% - 85%) (Bridges & Goldberg, 1989). Those respondents classified as false positives are likely to be individuals with physical disorders who have responded to items concerned with somatic symptoms and social dysfunction (Bridges & Goldberg, 1986; Finlay-Jones & Murphy, 1979; Maguire, Julier, Hawton, & Bancroft, 1974; Rabins & Brooks, 1981). The total score of the GHQ has been found to correlate highly with the Present State Examination (Banks, 1983; Rabins & Brooks, 1981) which consists of a structured clinical interview designed to ascertain the presence of symptoms of functional psychoses and neuroses. Vieweg and Hedlund (1983) reported that the GHQ correlated with a number of other measures of psychiatric disturbance and has been shown to be a relatively effective psychiatric screening measure.

Malt (1989) assessed the validity of the 20-item version of the GHQ in a sample of accidentally injured adults. Respondents completed the questionnaire on three separate occasions: during their hospitalization, at nine months following their accident, and at the final follow-up. Split-half reliability was found to range from .81 to .86 and Cronbach's

alpha ranged from .81 to .91. Most relevant to the proposed study, Jaffe et al. (1986) administered the GHQ-28 to a sample of abused women residing in an emergency shelter. Cronbach's alpha was found to equal .94.

King (1986) assessed the validity of the CAGE questionnaire and found the sensitivity and specificity to be acceptable at 84% and 95% respectively when using a cut-off point of two or more affirmative responses and using a drinking history as the "gold standard." These results compare favourably with the findings of Bernadt, Mumford, and Murray (1984) who compared the CAGE questionnaire against laboratory tests in a psychiatric hospital population and found the sensitivity and specificity to be 91% and 77% respectively.

Studies of the positive predictive power of the CAGE (Bush, Shaw, Cleary, Delbanco, & Aronson, 1987; King, 1986) have obtained divergent values ranging from 45% to 82%. The lower value, obtained in an outpatient setting, suggests that the questionnaire can yield a relatively large number of false-positive diagnoses of alcoholism.

It is recognized that the CAGE is based on a conception of "alcoholism" rather than of alcohol dependence, that is it confuses dependence signs with alcohol-related disabilities. However, the questionnaire does fairly reliably distinguish groups who have been diagnosed "alcoholic" from other clinical samples (Strang et al., 1989) and can be considered a useful and efficient screening measure (Morey & Martin, 1989).

The CTS (Straus, 1979) has been utilized in several studies of family violence (Brinkerhoff & Lupri, 1988; Campbell, 1986, 1989;

Henton, Cate, Koval, Lloyd, & Christopher, 1983; Hornung, McCullough, & Sugimoto, 1981; Jaffe et al., 1986; Kennedy & Dutton, 1987, 1989; Smith, 1987; Straus, 1974) and four different investigators have established that the instrument measures three factorially separate variables (Barling, O'Leary, Jouriles, Vivian, & MacEwen, 1987; Jorgensen, 1977; Schumm, Martin, Bollman, & Jurich, 1982; Straus, 1979). Internal consistency of the CTS has been addressed by item to total score correlations (.70 to .87) and alpha coefficients for the three categories (Straus, 1979). Construct validity was established in studies which found associations with the CTS consistent with predictions (Kalmuss & Straus, 1982; Straus et al., 1980). Validity data have also been generated by comparing reports of different family members (Browning & Dutton, 1986; Straus, 1974) and comparing scores with in-depth interviews (Gelles, 1972). The CTS physical aggression scale has shown significant inter-partner reliability (Jouriles & O'Leary, 1985). However, Edleson and Brygger (1986) and Szinovacz (1983) reported that abusive men consistently underreport their own violence, but abused women report more violence in both partners than do men. One concern regarding the measurement of wife abuse is whether informants will report abuse to an anonymous interviewer. It is likely that some under-reporting will occur, however Straus et al. (1980) reported that respondents refused to answer questions about abuse no more frequently than respondents in telephone surveys in general. Further, Arias and Beach (1987) found that socially desirable response set is not related to the willingness of women to report abuse.

Ethical Considerations

This study was approved by the Ethics Committee of the Faculty of Nursing at the University of Alberta. Several strategies were utilized to protect the rights of the subjects in this study. First, oral consent of the subjects was obtained prior to the administration of the questionnaire. Subjects were informed of the purpose of the study, that participation was voluntary and that they had the right to refuse to participate. Further, subjects were told that they could refrain from answering any questions and could terminate the interview at any time. Anonymity of the subjects was maintained at all times. Data were organized by subject codes and the telephone numbers of the subjects were kept by the investigator in a separate locked file. The names and addresses of the subjects remained unknown to the investigator.

In the event that subjects asked questions regarding their health, the investigator provided answers to the best of her ability following the completion of the data collection. If the investigator was unsure of appropriate responses, she referred the subject to resource personnel. The investigator had available a list of appropriate resource personnel and telephone numbers (see Appendix F). On only a few occasions was it necessary to provide subjects with the names and phone numbers of emergency shelters and/or support groups.

CHAPTER IV

ANALYSIS AND RESULTS

The analysis and findings of this study are presented in the following manner. First, a discussion of the response rates and demographic profile of the sample is provided. Second, the incidence rates of physical abuse and psychological abuse are outlined, followed by a discussion of the demographic factors related to the incidence of physical and/or psychological abuse. Third, the health problems of women who are abused are described, including physical injuries, mental health problems, alcoholism, medication use, spontaneous abortions, and chronic pain. Finally, the health care utilization patterns of women who are physically and/or psychologically abused are discussed.

Response Rates

Currently, most experts in survey research methods suggest that response rates should be best thought of as a range, rather than as a single value (Fowler, 1984; Frey, 1983; Lavrakas, 1987). Table 1 describes the distribution of all 2,000 telephone numbers used in this survey.

Table 2 shows various response rates associated with this survey. Response rates can vary depending on the values used for the numerator and denominator.

Table 1

Final Disposition of Telephone Numbers (N=2,000)

Final Disposition	Number	Percentage of All Sample Numbers
Numbers not in service	504	25.2
No answer after 10 calls	98	4.9
Business numbers	373	18.7
Needed foreign language interviewers	63	3.2
Ineligible ¹	405	20.2
Refusal by household respondent ²	41	2.0
Refusal by eligible respondent	110	5.5
Completed interviews	406	20.3

¹Only single women or men resided at the number.²Eligibility of respondent was never determined.

Table 2

Response Rates

Type of Rate	Comparison	Numerator/ Denominator	Rate (%)
Gross efficiency of sampling pool	Working numbers/ All numbers	1496/2000	74.8
Efficiency of sampling pool in reaching households	Possible households/ All numbers	1123/2000	56.2
Conservative estimate of efficiency of sampling pool in reaching households	Probable households/ All numbers	1025/2000	51.3
Gross completion rate	All completions/ All numbers	406/2000	20.3
Conservative completion rate	All completions/ All possible households	406/1123	36.2

Table 2 (continued)

Completion Rate Calculations

Most reasonable completion rate (conservative estimate)	All completions/ All possible eligibles ¹	406/557	72.9
Most reasonable completion rate (liberal estimate)	All completions/ All eligibles ²	406/516	78.7

¹Includes 41 refusals in which eligibility was not determined.

²Excludes 41 refusals in which eligibility was not determined.

Sampling Pool Efficiency Rates

The sampling pool in this study was very efficient with only 25.2% of the numbers confirmed as non-working. One estimate of the efficiency of the sampling pool in reaching residential households is 56.2% (calculated by subtracting the 373 telephone numbers that reached businesses, and not the 98 telephone numbers that never answered after 10 dialings). Yet, in all likelihood, most of the never-answered telephones were not residential numbers. The field period for this survey extended for 16 weeks, during which time each of the numbers was attempted 10 times, on various days of the week and weekend, and at various times of the day and evening. Accordingly, it is reasonable to assume that the bulk of the never-answered telephone numbers rang at coin telephones, in warehouses, or other non-residential locations. If these 98 telephone numbers are subtracted from the numerator, a more conservative rate of 51.3% is obtained for the efficiency of the sampling pool in reaching residential numbers within the sampling area.

Completion Rates

The gross completion rate for this study, comparing the 406 completions to the 2,000 telephone numbers used, is 20.3%, as shown in Table 2. A more reasonable but still quite conservative estimate of the success of this survey in completing interviews at residential numbers would be to use all possible household numbers (including the 98 never-answered) in the denominator. This yields a rate of 36.2%. Finally, the most reasonable completion rate is one that eliminates from the denominator those numbers that can be argued to be ineligible. This includes households in which no one met the inclusion criteria and numbers that were never answered after 10 different call attempts. Using this mode of calculation, there are two possible rates, depending on how the 41 refusals by household respondents are treated. In these cases, women answered the telephone, refused to participate, and would not discuss their eligibility. In the majority of cases when a woman refused to participate, when asked about eligibility, it was discovered that she was single and thus ineligible. Accordingly, if one assumes that all of the 41 women who refused to participate were also ineligible, the completion rate is 78.7%. A more conservative approach would be to assume that all of the women were eligible, yielding a rate of 72.9%. The actual rate lies somewhere between 72.9% and 78.7%. We can conclude that approximately three of every four eligible respondents were successfully interviewed.

Demographic Profile of Respondents

Of the 406 respondents, 95% were married or in a common-law relationship and the remaining 5% had been in a relationship with a male partner within the previous year, but were currently separated, divorced, widowed or single (see Table 3).¹

Table 3
Marital Status of Respondents

Marital status	Frequency	Percent
Married	331	81.5
Common-law	55	13.5
Separated	10	2.5
Divorced	2	0.5
Single	5	1.2
Widowed	3	0.7
Total	406	

The respondents ranged in age from 18 to 82 years (median = 35; mean = 39.4; SD = 14.3) and had been in the relationship of interest for less than one year to 55 years (median = 10 years; mean = 14.5; SD = 13.6). They had 0 to 10 children (median = 2; mean = 1.8; SD = 1.4), of which 0 to 5 currently resided with the respondents (median = 1.0; mean = 1.1; SD = 1.1). The majority of the respondents (60.7%) were employed outside the home, as were the majority (79.3%) of the respondents'

¹One woman who was coded as married, reported that she had been separated from her husband for a 3 month period within the previous year.

partners (see Tables 4 & 5).³

Table 4

Employment Status of Respondents

Status	Frequency	Percentage
Full-time	163	40.2
Part-time	83	20.5
Unemployed	4	1.0
Retired	26	6.4
In school	20	4.9
Keeping house	103	25.4
Unable to work ¹	6	1.5
Total	405	

¹Disabled, ill, etc.

Table 5

Employment Status of Male Partners

Status	Frequency	Percentage
Full-time	309	76.3
Part-time	12	3.0
Unemployed	12	3.0
Retired	54	13.3
In school	12	3.0
Unable to work ¹	6	1.5
Total	405	

¹Disabled, ill, etc.

The highest level of education attained by the respondents ranged from no schooling (as reported by one respondent) to an earned doctorate

³Those respondents who were not currently residing with their partners were asked to respond to all questions as they related to the last 12 months in which they actually resided with their partner.

(as reported by two respondents). The median level of education attained was a completed high school diploma. The lowest level of education attained by a respondent's partner was an incomplete elementary education and six men were reported to have earned doctorates. The median level of education was a completed high school education. Interestingly, 3% of the respondents did not know the level of education obtained by their partner.

The median combined total income (before deductions and taxes) reported by the respondents was \$30,000 to \$39,999. However, this is most likely a biased estimate as 7.6% of the respondents did not know their combined income and 5.7% did not respond. It is generally believed that high income groups refuse to report their incomes more frequently than do people with low incomes, which results in missing data that is non-random in nature (Anderson, Basilevsky, & Hum, 1983). The respondents reported their own median income (before deductions and taxes) as \$10,000 to \$19,999. The caveat described above applies to these data as well (4.2% did not know their income and 5.2% did not respond).

Incidence of Physical Abuse

There were six cases with missing data on at least one of the nine physical abuse items of the Conflict Tactics Scales (see Appendix D) and, as a result, they were excluded from the analysis. In one of these cases, the woman failed to answer the last six questions referring to physical abuse because the interview was disrupted when a man, as heard

by the interviewer, yelled at the woman to hang up the telephone. This respondent had indicated that she had not experienced something being thrown at her, being pushed, grabbed or shoved, or being slapped or spanked. She received a score of three on the psychological abuse subscale.

The remaining five cases did not answer any of the physical abuse items. One was called away by a loud, swearing male voice, one was simply called away, one's husband had Alzheimer's disease and so the respondent did not feel it was "fair" to answer, and one, an elderly woman, thought the interview was "too personal" and refused to answer. The fifth case left the interviewer believing that she was physically abused because of her hesitation in answering, but she did not answer the questions. She obtained a score of eight on the first four questions of the psychological abuse subscale.

The Department of Sociology, University of Alberta, through its research facility, the Population Research Laboratory (PRL), conducts an annual survey project in the Province of Alberta. In 1987, the survey included the Conflict Tactics Scales.⁴ The data from the 1987 survey will be presented with the current study's findings for purposes of comparison. It should be noted that a subsample (N = 120) was drawn from the overall survey sample, in order to match the inclusion criteria of this study. That is, the subsample includes women, living in the City of Edmonton, who were married, in a common-law relationship, or who had lived with a male partner in the previous year in a marriage-like

⁴This survey, directed by Dr. L. W. Kennedy formed the basis for the work reported in Kennedy and Dutton (1987, 1989).

relationship. It should also be noted that face-to-face interviewing was conducted for the Edmonton sample of the PRL study. The results of the current study and the 1987 PRL study are found in Table 6.

Table 6
Physical Abuse: Comparison of Incidence Rates for Specific Acts for 1987 Edmonton Survey and 1990 Edmonton Survey

Type of Violence	Percentage of Sample			
	Current Study (1990) (N=401)		PRL (1987) (N=120)	
	f	%	f	%
A. Minor Violence Acts				
1. Threw something	17	4.2	5	4.2
2. Pushed/grabbed/shoved	41	10.2	13	10.8
3. Slapped or spanked	13	3.2	6	5.0
B. Severe Violence Acts				
4. Kicked/bit/hit with fist	11	2.8 ¹	4	3.3
5. Hit, tried to hit with something	15	3.8 ¹	2	1.7
6. Beat up	11	2.8 ¹	3	2.5
7. Choked	11	2.8 ¹	3	2.5
8. Threatened with a knife or gun	4	1.0 ¹	1	0.8
9. Used knife or gun	3	0.8 ¹	0	0.0
C. Physical Abuse				
Overall Violence (1-9)	43	10.7 ¹	15	12.5
Severe Violence (4-9)	21	5.2 ¹	4	3.3

¹N = 400

The rate of 10.7% for overall violence found in the current study is 86% of the PRL rate. However, this difference was not found to be statistically significant ($\chi^2 = 0.45$; $p > .10$). The severe violence

rate of 5.2% found in this study appears to be 1.5 times that of the PRL rate, but again this difference is not statistically significant ($\chi^2 = 0.92$; $p > .10$).

Incidence of Psychological Abuse

There were 13 cases with missing data on at least one of the six psychological abuse items of the Conflict Tactics Scales and, as a result, they were excluded from the analysis. Three of these cases did not answer any of the questions.³ Seven of these cases failed to respond to one to three items, but responded affirmatively to the remaining psychological abuse items. Finally, three cases failed to answer between one and five items, but responded in the negative to the remaining items.

The scores for psychological abuse were obtained by summing the six relevant items on the Conflict Tactics Scales. Note that the item "cried" was omitted. Possible scores ranged from 0 to 36. This "score" produced an extremely skewed distribution such that even "robust" statistics such as correlation would likely produce incorrect results. Attempts to transform the data to normality were undertaken but failed to render the distribution normal. Thus it was decided to categorize these data into four "groupings": (a) no psychological abuse (score -

³Of these, one was prevented by her husband from completing the interview, one's husband had Alzheimer's disease and the respondent believed it was inappropriate to respond, and the third believed the questions were "too personal." These three cases were also missing cases on the physical abuse variable.

0), (b) minimal psychological abuse (score = 1-3), (c) moderate psychological abuse (score = 4-9), and (d) severe psychological abuse (score = 10+). The distribution of cases is shown in Table 7.

Table 7
Incidence of Psychological Abuse Experienced
by Women Free of Physical Abuse

Extent of Psychological Abuse	Frequency	Incidence %
No psychological abuse	114	32.6
Minimal psychological abuse	97	27.7
Moderate psychological abuse	86	24.6
Severe psychological abuse	53	15.1
Total	350	

It should be noted that the incidence rates of psychological abuse exclude those women who were physically abused ($N = 43$; 10.7%). Ninety-three percent of the physically abused women scored in the severe psychological abuse range and no physically abused woman was free of psychological abuse (see Table 8).

The remainder of the analyses are generally presented in the following manner. First, the issue of physical abuse is addressed with comparisons made between women who are free of physical abuse and women who experience physical abuse. Second, the issue of psychological abuse is addressed with comparisons made among the four psychological abuse groups. The 43 women who were physically abused were excluded from all analyses related to psychological abuse unless otherwise indicated. This was done so that the effects of physical abuse and psychological

abuse could be examined separately.

Table 8
Incidence of Psychological Abuse Experienced
by Physically Abused Women

Extent of Psychological Abuse	Frequency	Incidence %
No psychological abuse	0	0.0
Minimal psychological abuse	2	4.7
Moderate psychological abuse	1	2.3
Severe psychological abuse	40	93.0
Total	43	

Demographic Factors Relating to the Incidence of
Psychological and/or Physical Abuse

Physical Abuse

The relationships of several demographic factors to the experience of physical abuse were examined (see Table 9). Extremely high rates of physical abuse were reported by women who were separated, divorced, or single at the time of the interview, but who had lived in a marriage-like relationship in the previous year (70.6%; N = 17). Age was found to affect the rates of physical abuse with the highest rates occurring in the 18-34 (16.4%) and the 35-44 (12.3%) year age group. The length of the relationship also had a significant effect with the highest rates of physical abuse occurring in relatively new relationships (1-4 years:

17.2%). The woman's employment status did not have a statistically significant effect on physical abuse rates, but the partner's employment status did. The highest rates of physical abuse occurred if the woman's partner was unemployed or in school. Consistent with employment status, women's earned income did not have an effect on physical abuse rates, but the total household income did, with physical abuse occurring in 18.4% of couples with annual incomes of less than \$20,000. Neither the education of women, nor of their partners was related to physical abuse. It should be noted that women with the highest level of education were not free of physical abuse.

Table 9

Demographic Factors Related to Physical Abuse

Demographic Variable	Total Incidence of Physical Abuse χ^2 (N=400)			
	N	Number	%	
Marital Status				53.4 ^{***}
Married	328	26	7.9	
Common-law	52	5	9.6	
Other ¹	20	12	60.0	
Age ²				19.4 ^{***}
18-34	195	32	16.4	
35-44	81	10	12.3	
45-64	95	1	1.1	
65+	28	0	0.0	
Length of Relationship ³				18.8 ^{***}
1-4 years	116	20	17.2	
5-9 years	81	12	14.8	
10-19 years	81	10	12.3	
20+ years	119	1	0.8	

Table 9 (continued)

Demographic Factors Related to Physical Abuse

Demographic Variable	Total Incidence of Physical Abuse χ^2 (N=400)			
	N	Number	%	
Employment Status				6.7
Employed full-time	162	18	11.1	
Employed part-time	83	7	8.4	
Unemployed	4	1	25.0	
Retired	24	0	0.0	
In school	19	4	21.1	
Keeping house	102	12	11.8	
Unable to work ⁴	6	1	16.7	
Partner's Employment Status				31.5 ^{***}
Employed full-time	306	31	10.1	
Employed part-time	12	2	16.7	
Unemployed	12	5	41.7	
Retired	52	0	0.0	
In school	12	5	41.7	
Unable to work ⁴	6	0	0.0	
Respondent's Income⁵				1.8
Under \$10,000	152	17	11.2	
\$10,000-19,999	101	14	13.9	
\$20,000-29,999	64	7	10.9	
\$30,000+	47	3	6.4	
Combined Income⁶				9.2 [*]
Under \$20,000	38	7	18.4	
\$20,000-29,999	66	11	16.7	
\$30,000-49,999	146	18	12.3	
\$50,000+	100	4	4.0	
Education⁷				8.9
No schooling-Grade 7	8	0	0.0	
Grade 8-Grade 10	43	8	18.6	
Grade 11-Grade 12	161	17	10.6	
Some college/ university	130	13	10.0	
Baccalaureate	46	2	4.3	
Professional degree/ Master's/PhD	11	3	27.3	

Table 9 (continued)

Demographic Factors Related to Physical Abuse

Demographic Variable	Total Incidence of Physical Abuse χ^2		
	(N=400)		
	N	Number	%
Partner's Education ¹			10.5
No schooling-Grade 7	6	2	33.3
Grade 8-Grade 10	46	5	10.9
Grade 11-Grade 12	149	17	11.4
Some college/ university	110	16	14.5
Baccalaureate	50	2	4.0
Professional degree/ Master's/PhD	27	0	0.0

¹Separated (10), divorced (2), widowed (3), or single (5). None of the widowed women reported physical abuse.

²1 missing case; ³3 missing cases.

⁴Disabled, ill, etc.

⁵36 missing cases; ⁶50 missing cases; ⁷12 missing cases.

*p < .05

**p < .001

Finally, the relationship between the number of children a woman has and the experience of physical abuse was examined. There was no statistically significant effect on physical abuse rates in terms of total number of children, but the number of children residing with the respondent did have an effect on physical abuse rates (see Table 10). The more children a woman reported living with her, the more likely she was to report physical abuse.

Table 10
Number of Children (Physical Abuse)

Variable	Total (N=400)	Physically Abused Number	χ^2
Total number of children			5.0
0	95	9	9.5
1	65	10	15.4
2	136	10	7.4
3	71	11	15.5
4-10	33	3	9.1
Number of children at home			16.1
0	163	9	5.5
1	82	10	12.2
2	109	12	11.0
3-5	46	12	26.1

$p < .01$

Because the risk of Type I error increases with the number of statistical tests done, multivariate analysis of the demographic data was carried out. A direct discriminant function analysis was performed using ten demographic variables as predictors of membership in two groups: physically abused women and women free of physical abuse. Predictors were marital status (a dichotomous variable coded as follows: married or common-law = 1; separated, divorced, or single = 2; widows were excluded from the analysis), age, length of relationship, education, partner's education, total number of children, number of children currently living at home, combined income, and two dichotomous variables describing the respondent's or her partner's employment status (each coded as follows: income earner = 1; not an income earner, that is unemployed, in school, or keeping house = 2; individuals who were retired were excluded). Of the original 406 cases, 104 were excluded

from the analysis (6 had missing data on their physical abuse status; 3 were widows; 24 women were retired; 52 husbands were retired; and the remaining cases were excluded because of missing data on at least one predictor variable). Of the 302 cases retained, 39 were physically abused.

There was statistically significant separation between the two groups by the ten demographic predictors, $\chi^2(10) = 79.28$, $p < .001$. The loading matrix of correlations between predictors and the discriminant function, as seen in Table 11, suggests that the best predictors for distinguishing between physically abused women and women free from physical abuse are the woman's marital status, whether or not her partner is an income earner, the couple's combined income and the woman's age. In summary, physically abused women are more likely to have ended their relationship, are more likely to live with a partner who is unemployed or in school rather than employed, are more likely to be in relationships with relatively low combined incomes (mean combined income = \$30,000 - \$39,999) than women who are free from physical abuse (mean combined income = \$40,000 - \$49,999) and tend to be younger (mean age = 30.4) than women who are free from physical abuse (mean age = 35.4). Loadings less than .30 are not interpreted.

Of the total usable sample of 302, 269 (89.1%) were classified correctly, compared to 234 (77.5%) that would be correctly classified by chance alone. However, this group of predictors was more accurate in predicting a woman to be free from physical abuse (98.1%) than in predicting a woman to be physically abused (28.2%).

Table 11

Results of Discriminant Function Analysis of Demographic Variables

(Physical Abuse)

Predictor variable	Correlation of predictor variable with discriminant function
Marital status ¹	0.77
Partner is an income earner ²	0.40
Combined income	-0.36
Age	-0.31
Length of relationship	-0.29
Partner's education	-0.28
Number of children at home	0.28
Woman is an income earner ²	0.14
Total number of children	0.08
Education	-0.08

¹Married/common-law - 1; separated/divorced/single - 2

²Yes - 1; no - 2

Psychological Abuse

Demographic factors were also examined in relation to the incidence of psychological abuse. The women who reported physical abuse were excluded from this analysis (see Table 12). In these analyses, only marital status, age, and length of relationship had a statistically significant relationship with psychological abuse. Younger women and women in relatively young relationships were more likely to be severely psychologically abused. Neither the total number of children a woman had, nor the number of children living at home were related to psychological abuse.

Table 12

Demographic Factors Related to Psychological Abuse

(In the Absence of Physical Abuse)

Demographic Variable	Degree of Psychological Abuse				Total (N=350)	χ^2
	None	Minimal	Moderate	Severe		
	Percentage					
Marital Status						18.6 ^{**}
Married	35.6	26.4	25.4	12.5	295	
Common-law	17.0	38.3	17.0	27.7	47	
Other ¹	12.5	12.5	37.5	37.5	8	
Age²						18.4 [*]
18-34	24.4	26.9	29.4	19.4	160	
35-44	37.1	25.7	18.6	18.6	70	
45-64	39.8	31.2	22.6	6.5	93	
65+	46.2	26.9	19.2	7.7	26	
Length of Relationship³						18.9 [*]
1-4 years	28.7	30.9	21.3	19.1	94	
5-9 years	24.6	26.1	27.5	21.7	69	
10-19 years	30.0	21.4	30.0	18.6	70	
20+ years	41.2	30.7	22.8	5.3	114	
Employment Status						22.7
Full-time	29.6	28.2	26.8	15.5	142	
Part-time	27.6	30.3	26.3	15.8	76	
Unemployed	100.0	0.0	0.0	0.0	2	
Retired	50.0	31.8	9.1	9.1	22	
In school	14.3	21.4	28.6	35.7	14	
Keeping house	38.9	25.6	24.4	11.1	90	
Unable to work ⁴	25.0	25.0	0.0	50.0	4	
Partner's Employment Status						20.0
Full-time	31.0	27.7	24.7	16.6	271	
Part-time	30.0	30.0	10.0	30.0	10	
Unemployed	14.3	14.3	57.1	14.3	7	
Retired	44.0	32.0	20.0	4.0	50	
In school	28.6	28.6	14.3	28.6	7	
Unable to work ⁴	40.0	0.0	60.0	0.0	5	

Table 12 (continued)

Demographic Factors Related to Psychological Abuse

(In the Absence of Physical Abuse)

Demographic Variable	Degree of Psychological Abuse				Total (N=350)	χ^2
	None	Minimal	Moderate	Severe		
	Percentage					
Respondent's Income¹						6.3
Under \$10,000	36.4	25.8	23.5	14.4	132	
\$10,000-19,999	25.6	36.0	22.1	16.3	86	
\$20,000-29,999	28.6	26.8	26.8	17.9	56	
\$30,000+	36.4	31.8	22.7	9.1	44	
Combined Income²						11.2
Under \$20,000	29.0	29.0	22.6	19.4	31	
\$20,000-29,999	35.2	22.2	16.7	25.9	54	
\$30,000-49,999	36.3	28.2	24.2	11.3	124	
\$50,000+	26.0	35.4	25.0	13.5	96	
Education³						17.3
None - Grade 7	57.1	14.3	0.0	28.6	7	
Grade 8-10	44.1	17.6	17.6	20.6	34	
Grade 11-12	26.4	27.9	27.1	18.6	140	
Some college/ university	32.8	27.6	26.7	12.9	116	
Baccalaureate	38.6	36.4	20.5	4.5	44	
Professional degree/MA/PhD	37.5	25.0	25.0	12.5	8	
Partner's Education⁴						19.0
None - Grade 7	50.0	25.0	25.0	0.0	4	
Grade 8-10	30.0	30.0	20.0	20.0	40	
Grade 11-12	28.9	23.4	30.5	17.2	128	
Some college/ university	30.9	28.7	22.3	18.1	94	
Baccalaureate	46.8	34.0	14.9	4.3	47	
Professional degree/MA/PhD	30.8	38.5	26.9	3.8	26	

¹Separated (3), widowed (3); single (2).²1 missing case; ³3 missing cases.⁴Disabled, ill, etc.⁵32 missing cases; ⁶45 missing cases; ⁷11 missing cases.⁸p < .05⁹p < .01

A direct discriminant function analysis was performed using ten demographic variables as predictors of a woman's psychological abuse status: (a) free of psychological abuse, (b) minimal psychological abuse, (c) moderate psychological abuse, and (d) severe psychological abuse. The predictors were those used in the discriminant function analysis carried out for physical abuse status.

Of the original 406 cases, 259 cases were used in this analysis (43 cases of physically abused women were deleted, as were 13 cases with incomplete psychological abuse data, 3 who were widows, 24 who were retired, and 52 whose husbands were retired, and those who had missing data on at least one of the demographic variables).

Three discriminant functions were calculated with a combined $\chi^2(30) = 54.89$, $p < .01$. After removal of the first function there was no longer a statistically significant association between groups and predictors, $\chi^2(18) = 25.43$, $p > .05$. The three discriminant functions accounted for 54.4%, 32.6% and 13.0%, respectively, of the between group variability. The first function appears to represent all of the observed differences between the groups. The second and third discriminant functions do not add any differences which we could confidently say exist in the population (Klecka, 1980). The first discriminant function maximally separates women who are severely psychologically abused from the other three groups. The second discriminant function discriminates women who are free from psychological abuse from those who experience minimal or moderate psychological abuse, and the third discriminant function discriminates between women who experience mild psychological abuse from women who

experience moderate levels of psychological abuse.

The loading matrix of correlations between predictors and discriminant functions, as seen in Table 13, suggests that the best predictors for distinguishing between women who are severely psychologically abused and women who are free from psychological abuse (first function) are age, partner's education, length of relationship, and marital status.

Table 13

Results of Discriminant Function Analysis of Demographic Variables
(Psychological Abuse)

Predictor variable	Correlations of predictor variables with discriminant functions		
	1	2	3
Age	.59*	-.11	.37
Partner's education	.53*	.03	-.21
Length of Relationship	.50*	.20	.26
Marital Status ¹	-.40*	-.34	-.19
Education	.28	.48*	-.18
Combined Income	.25	.33*	.10
Number of children at home	-.15	-.02	.57*
Partner is an Income Earner ²	-.23	.21	.38*
Total number of children	.09	-.01	.31*
Woman is an Income Earner ²	.24	-.19	.27*

¹Married/common-law = 1; separated/divorced/single = 2

²Yes = 1; No = 2

Women who are free from psychological abuse tend to be older (mean age = 38.3) than women who experience severe psychological abuse (mean age = 32.7), have husbands with relatively higher levels of education and have been in their relationships for relatively longer periods of

time (13.5 years) than women who are severely psychologically abused (7.8 years), and are more likely to be in a marital relationship that has not resulted in separation or divorce in the previous year.

With the use of the SPSS⁺ (SPSS, 1988) classification procedure for the total usable sample of 259 women, 105 (40.5%) were classified correctly, compared to 68.5 (26.4%) that would be correctly classified by chance alone. The 40.5% classification rate was achieved by classifying a disproportionate number of cases as free from psychological abuse. Although 30.9% of the women were actually free from psychological abuse, the classification scheme, using sample proportions as prior probabilities, classified 38.6% of the women as free from psychological abuse. This means that women who were free from psychological abuse were more likely to be correctly classified (53.8% correct classification) than the minimally psychologically abused women (37.3% correct classifications), the moderately psychologically abused women (41.0% correct classifications) or the severely psychologically abused women (20.9% correct classification).

Health Problems of Women who are Abused

Physical Injuries

The respondents were asked if they had sustained any bone fractures, large bruises, lacerations that required suturing, or sprains or strains in the previous year and if so, the number of occasions on which such injuries occurred and the anatomic location of the injuries

(see Appendix A). In addition to these items the respondents were asked about head injuries, ruptured ear drums and the type and location of any other injuries they might have sustained.

The number of women who reportedly sustained bone fractures in the previous year did not differ across the two physical abuse groups. Only 2 physically abused women (4.7%) and 16 women free of physical abuse (4.5%) reported having experienced a fracture. One physically abused woman's hand or arm had been fractured, and the other woman had a fractured tailbone. The women who were free from physical abuse reported fractures to the hands or arms (7), legs or feet (6), hip (1), ribs (1), nose (1), and eye socket (1).

The number of women who reported sustaining large bruises in the past year differed across the groups ($\chi^2 = 6.11$, $p < .05$ with Yates' correction). Large bruises were reported by 76.7% of the physically abused group compared to 55.7% of the women free from physical abuse. Further, physically abused women reported sustaining large bruises more frequently than women free of physical abuse, as summarized in Table 14.

Table 14

Reported Number of Large Bruises

Number of Bruises	Non-abused women (N=340)		Physically abused women (N=40)		χ^2
	Number	%	Number	%	
0	158	46.5	10	25.0	14.6 ^{**}
1-6	99	29.1	13	32.5	
7-12	47	13.8	5	12.5	
13+	36	10.6	12	30.0	

^{**}p < .01

There appears to be a difference in the distribution of these bruises. Of all the sites of bruises identified by women free of physical abuse, 98.9% of the bruises were reported to appear on the hands, arms, legs, or feet. In addition to reporting these sites, 6% of the bruises reported by women who were physically abused occurred to the chest, neck, and face.

The proportion of women who sustained a laceration requiring suturing also differed across the groups. Only 3.6% of women free from physical abuse reported such an injury, compared to 11.6% of women who were physically abused ($\chi^2 = 4.0$, $p < .05$ with Yates' correction). All of the women who reported such an injury, indicated that it had only occurred once in the previous year, except one woman who was free of physical abuse and who had sustained two lacerations. There was no significant difference in the distribution of these injuries with 84.6% of these injuries occurring to the hands or arms of non-abused women, compared to 80% of the abused women's lacerations. The remainder consisted of injuries to the face, legs, or feet for non-abused women and to the ear for physically abused women.

The number of women who reported sustaining a sprain or strain during the previous year differed across the groups. Whereas 22.4% of women who were free from abuse reported sustaining a sprain or strain, 41.9% of women who were physically abused did so ($\chi^2 = 6.8$, $p < .01$ with Yates' correction). Further, the reported number of sprains or strains sustained differed across the groups. Women who were physically abused reported experiencing more sprains or strains than women who were free from abuse (see Table 15).

Table 15

Reported Number of Sprains or Strains

Number of Sprains/ Strains	Non-abused women (N=354)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	277	78.2	25	58.1	9.6 ⁻
1	66	18.6	14	32.6	
2+	11	3.1	4	9.3	

⁻p < .01

Although occurring with greater frequency in women who were physically abused, the distribution of the sprains or strains did not differ across the groups. Slightly more than one-half of these injuries occurred to the hands, arms, legs, or feet of women, regardless of their physical abuse status (56.2% for non-abused women and 56.5% for abused women). Women who were physically abused reported 43.5% of the sprains or strains they sustained occurred to the back or neck, compared to 37.1% of the sprains or strains sustained by women free of abuse. Finally, 6.7% of the strains or sprains sustained by non-abused women occurred to the chest, ribs, or shoulder (no physically abused women cited these areas).

There was no difference between the two groups in terms of the number of women who reported sustaining a head injury. Only six women (1.7%) of those who were free from physical abuse reported such an injury, compared to one woman (2.3%) who was physically abused ($\chi^2 = .00$, $p > .05$ with Yates' correction). The head injuries sustained by women who were free from abuse resulted because of falls (3), "bumping

their head on something" (2), or a concussion resulting from a motor vehicle accident (1), whereas the woman who was physically abused was "kicked in the head."

Ruptured ear drums were not a common injury in either group. No physically abused woman reported such an injury and only two (0.6%) non-abused women reported ruptured ear drums.

The respondents were asked if they had sustained any other injuries over the previous year. A total of 15 additional injuries were cited by the women who were free of physical abuse. These injuries included: burned fingers, hands, or arms (4), lacerated fingers not requiring suturing (4), a burned face (1), a "scrape under the eye" (1), a self-inflicted, accidental "poke in the eye" (1), falls resulting in a "bumped knee," a "bumped head," or a "pulled muscle in the back" (3), and tendonitis of the hip due to a sports injury (1).

The additional injuries described by women who were physically abused were very different in nature: a bleeding nose (1), a lacerated lip (1), a cracked elbow (1), and one woman described being kicked in the abdomen shortly following a caesarian section delivery which resulted in the need for re-suturing. In addition to these injuries, they reported a "freezer burn" to the finger (1), a self-inflicted, accidental "poke in the eye" (1), and a knee injury (1).

Mental Health Problems

Physical Abuse

The mental health status of the respondents was measured by the

General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979) (see Appendix B) which consists of four subscales (somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression). Prior to analysis, the responses to the 28-item GHQ were examined through various SPSS* (SPSS, 1988) programs for accuracy of data entry and missing values. It should be noted that the responses were recoded in order to achieve comparability with the study of Jaffe et al. (1986) (i.e., "better than usual" = 0; "much worse than usual" = 3).

The total scores on the GHQ ranged from 16 to 72 (mean = 27.5; SD = 8.5). Cronbach's alpha (.91) indicated that the items were an internally consistent measure of mental health. Table 16 contains the results related to the four subscales and the total score of the GHQ. The variances of the two groups were not equal on each of the subscales, thus a separate variance estimate was used. The results of *t*-test comparisons revealed statistically significantly higher scores for women who were physically abused on the total score of the GHQ, as well as on the four subscales.

Hierarchical regression was employed to determine if the addition of information regarding economic status (as measured by the reported combined income), then the number of children at home, and then physical abuse status improved prediction of GHQ scores beyond that afforded by differences in age. Table 17 displays the correlations between the independent variables and the dependent variable, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semipartial correlations (Sr^2), and R , R^2 , and adjusted R^2 after entry of all four independent variables. R was

significantly different from zero at the end of each step, with the exception of the inclusion of number of children at home. After step four, with all independent variables in the equation, $R = .43$, $F(4,330) = 18.73$, $p < .001$.

Table 16
Comparison of General Health Questionnaire Scores
for Physically Abused Women and Non-abused Women

Variable	Physically abused women (N=43)		Non-abused women (N=357)		Difference in means	t
	Mean	SD	Mean	SD		
Somatic complaints	10.88	3.61	8.38 ¹	2.36	2.50 ± 0.80^2	-4.43 ⁻⁻⁻
Anxiety & insomnia	13.17 ³	4.82	8.65 ³	2.66	4.52 ± 0.95	-5.96 ⁻⁻⁻
Social dysfunction	8.58	2.58	7.65 ⁴	1.74	0.93 ± 0.59	-2.29 [*]
Depression	4.60 ³	4.55	1.54 ³	2.66	3.06 ± 0.93	-4.26 ⁻⁻⁻
Total score	37.66 ³	12.21	26.28 ⁶	7.11	11.38 ± 2.53	-5.85 ⁻⁻⁻

¹6 missing cases.

²95% confidence interval of the difference in means.

³1 missing cases; ⁴8 missing cases; ⁵2 missing cases; ⁶15 missing cases.

^{*} $p < .05$

⁻⁻⁻ $p < .001$

After step one, with age in the equation, $R^2 = .03$, $F_{(1,330)} = 9.51$, $p < .01$. After step two, with combined income added to the prediction of the GHQ score by age, $R^2 = .05$, $F_{(1,330)} = 9.24$, $p < .01$. After step three, with number of children at home added to the prediction of the GHQ score by age and combined income, $R^2 = .06$, $F_{(1,330)} = 1.37$, $p > .05$. The addition of number of children did not

reliably improve R^2 . Finally, after step four, with physical abuse status added, $R^2 = .19$ (adjusted $R^2 = .18$), $F_{(1,330)} = 51.46$, $p < .001$.

Table 17

Hierarchical Regression of GHQ Scores on
Physical Abuse Status and Selected Demographic Variables

Variables	GHQ Score (DV)	B	β	Sr^2 (incremental)
Age	-.17	-0.06	-0.09	.03 ⁻
Combined income	-.16	-0.41	-0.09	.03 ⁻
Number of children home	.08	0.03	0.00	.00
Physical abuse status ¹	.41	10.23	0.38	.13 ⁻
Intercept		30.41		
				$R^2 = .19$
				Adjusted $R^2 = .18$
				$R = .43$ ⁻

¹Coded: 0 = no physical abuse; 1 = physically abused

⁻p < .01

⁻p < .001

Psychological Abuse

The relationship between the women's GHQ scores and the psychological abuse to which they may have been exposed was examined. The women who reported being physically abused were not included in this analysis. Five additional cases were deleted because of missing data on the physical abuse items. ANOVAs were performed where the independent variable was psychological abuse status and the women (N=357) were classified into one of four groups: no psychological abuse, minimal psychological abuse, moderate psychological abuse and severe psychological abuse. The dependent variables were the total GHQ scores and each of the four subscale scores: somatic complaints, anxiety and

insomnia, social dysfunction, and depression. Table 18 displays the results of the ANOVA for the total GHQ score. Post hoc analysis using the Scheffé test (Scheffé, 1953) was carried out to counteract inflation of the Type I error rate caused by multiple comparisons (Tabachnick & Fidell, 1989). The analysis demonstrated that those women who experienced severe psychological abuse had significantly higher GHQ scores than any of the other three groups ($p < .05$).

Table 18
Analysis of Variance of GHQ Scores
(Psychological Abuse)

	Mean	SD	N
No psych abuse	25.25 ± 1.27 ¹	6.61	107
Minimal psych abuse	24.67 ± 1.03	4.98	93
Moderate psych abuse	26.40 ± 1.56	7.22	85
Severe psych abuse	29.80 ± 2.18	7.76	51

SOURCE	SS	df	MS	F
Between groups	974.99	3	325.00	7.55 [—]
Within groups	14291.29	332	43.05	

¹95% confidence interval of the mean
[—] $p < .001$

ANOVAs were carried out for each of the subscales, the results of which can be seen in Tables 19, 20, 21, and 22. The Scheffé test demonstrated that severely psychologically abused women had significantly more somatic complaints than either women who were free of psychological abuse or women who experienced minimal psychological abuse.

Table 19
Analysis of Variance of Somatic Complaints
(Psychological Abuse)

	Mean	SD	N
No psych abuse	8.05 ± 0.41 ¹	2.17	112
Minimal psych abuse	8.07 ± 0.39	1.92	95
Moderate psych abuse	8.48 ± 0.54	2.51	85
Severe psych abuse	9.27 ± 0.73	2.64	52

SOURCE	SS	df	MS	F
Between groups	62.52	3	20.84	4.04 ^{***}
Within groups	1755.62	340	5.16	

¹95% confidence interval of the mean
***p < .01

Table 20
Analysis of Variance of Anxiety and Insomnia
(Psychological Abuse)

	Mean	SD	N
No psych abuse	8.10 ± 0.37 ¹	1.97	113
Minimal psych abuse	8.12 ± 0.45	2.23	97
Moderate psych abuse	8.79 ± 0.59	2.74	86
Severe psych abuse	10.28 ± 0.96	3.49	53

SOURCE	SS	df	MS	F
Between groups	203.79	3	67.93	10.71 ^{***}
Within groups	2187.43	345	6.34	

¹95% confidence interval of the mean
***p < .001

The Scheffé test analysis indicated that severe psychological abuse is associated with significantly higher anxiety and insomnia scores

($p < .05$). The scores of the other three groups did not differ significantly. However, a gradient is noted with increasing anxiety and insomnia scores associated with increasing exposure to psychological abuse.

No statistically significant effects of psychological abuse were found on social dysfunction or depression. However, a trend is apparent with severely psychologically abused women reporting higher scores on both subscales than women who experience lesser degrees of psychological abuse.

Table 21
Analysis of Variance of Social Dysfunction
(Psychological Abuse)

	Mean	SD	N
No psych abuse	7.76 $\pm$ 0.35 ¹	1.87	110
Minimal psych abuse	7.28 $\pm$ 0.26	1.28	96
Moderate psych abuse	7.59 $\pm$ 0.35	1.62	86
Severe psych abuse	7.88 $\pm$ 0.50	1.77	51

SOURCE	SS	df	MS	F
Between groups	16.77	3	5.59	2.07
Within groups	915.31	339	2.70	

¹95% confidence interval of the mean

It is noteworthy that women who were physically abused had significantly higher scores than women who were severely psychologically abused but free of physical abuse on each of the GHQ subscales, except the social dysfunction subscale. Table 23 contains the results of the t-tests. The variances of the two groups were not the same (test for

homogeneity of variance was significant, $p < .05$) for the total GHQ score and each of the subscales. Accordingly, separate variance estimates were used.

Table 22
Analysis of Variance of Depression
(Psychological Abuse)

	Mean	SD	N
No psych abuse	1.26 ± 0.44 ¹	2.37	114
Minimal psych abuse	1.24 ± 0.42	2.05	95
Moderate psych abuse	1.62 ± 0.61	2.83	86
Severe psych abuse	2.17 ± 0.81	2.93	53

SOURCE	SS	df	MS	F
Between groups	37.55	3	12.52	2.00
Within groups	2155.35	344	6.27	

¹95% confidence interval of the mean

Alcoholism

The women who participated in this study were classified as either alcohol dependent or not, depending on their responses to the four items of the CAGE questionnaire. A criterion of at least two affirmative responses was employed as an indicator of alcohol dependency. Of the 357 women free of physical abuse, 3.6% were found to be alcohol dependent, compared to 16.3% of the 43 women who were physically abused ($\chi^2 = 10.4$, $p < .01$ with Yates' correction). Based on an odds ratio calculation, women who are physically abused have 5.2 times the risk of being alcohol dependent (with 95% confidence, the approximate confidence

limits obtained by a Taylor series expansion are 1.9 and 13.7 [Hennekens & Buring, 1987]).

Table 23

Comparison of GHQ Scores for Physically Abused Women
and Severely Psychologically Abused Women

Variable	Physically abused women (N=43)		Severely psychologically abused women (N=53)		Difference in means	t
	Mean	SD	Mean	SD		
Somatic complaints	10.88	3.61	9.27 ¹	2.64	1.61 ± 1.25 ²	-2.44*
Anxiety & insomnia	13.17 ¹	4.82	10.28	3.49	2.89 ± 1.67	-3.26**
Social dysfunction	8.58	2.58	7.88 ³	1.77	0.70 ± 0.88	-1.50
Depression	4.60 ¹	4.55	2.17	2.93	2.43 ± 1.53	-2.99**
Total score	37.66 ³	12.21	29.80 ⁴	7.76	7.86 ± 4.12	-3.58**

¹1 missing case.

²95% confidence interval of the difference in means.

³2 missing cases; ⁴3 missing cases.

*p < .05

**p < .01

Alcohol dependency was also examined in relation to exposure to psychological abuse. Table 24 summarizes the data on exposure to psychological abuse and alcohol dependency.

Medication Use

Respondents were asked to report the number of prescription medications they had taken in the previous month and whether they had

taken any particular medications. Following adjustment for age, the number of prescription medications did not vary significantly with physical or psychological abuse status, except in the 18-34 year age group. In this age group, women who were physically abused had taken more prescription medications in the previous month than women who were free from physical abuse (see Table 25).

Table 24

Alcohol Dependency in Women who are Psychologically Abused

Psychological abuse status	Alcohol dependent	Total
No psych abuse	1.8%	114
Minimal psych abuse	2.1%	97
Moderate psych abuse	3.5%	86
Severe psych abuse	11.3%	53

$$\chi^2 = 10.55, p < .05$$

Table 25

Number of Prescription Medications Taken, 18-34 Year Olds

(Physical Abuse)

Number of Medications	Non-abused women (N=163)		Physically abused women (N=31)		χ^2
	Number	%	Number	%	
0	73	44.8	8	25.8	8.0*
1	59	36.2	12	38.7	
2	21	12.9	5	16.1	
3+	10	6.1	6	19.4	

$$*p < .05$$

No association was detected between particular medications taken in

the month prior to the interview and the experience of physical and/or psychological abuse (see Tables 26 and 27). The women were also asked to report any additional medications that they may have taken in the previous month. Eighteen additional medications were reported by the women who were physically abused, and women who were free from abuse mentioned 171 medications. Most of these medications were taken for chronic health conditions, birth control, antibiotic therapy, hormone replacement and so forth. No patterns which might distinguish the two groups emerged.

Table 26

Use of Selected Medications (Physical Abuse)

Type of Medication	Physical Abuse Status		χ^2 ⁽¹⁾
	No physical abuse (N=357)	Physically abused (N=43)	
Non-prescription analgesics	67.2%	72.1%	0.22
Prescription analgesics	16.5%	23.3%	0.79
Sleeping pills	5.6%	9.3%	0.39
Antidepressants	5.0%	7.0%	0.03
Tranquilizers	5.3% ²	11.6%	1.69

¹ χ^2 calculated for each 2 x 2 contingency table with type of medication entered as yes or no.

²1 missing case.

Spontaneous Abortions

The respondents were asked if they had undergone a "miscarriage" at any time while living with their current partner. 24.1% of non-abused women and 20.9% of physically abused women responded affirmatively (χ^2 -

.07, $p > .05$). The number of spontaneous abortions did not vary significantly across the two groups (see Table 28).

Table 27

Use of Selected Medications (Psychological Abuse)

Type of Medication	Psychological Abuse Status				χ^2 ¹⁾
	None (N=114)	Minimal (N=97)	Moderate (N=86)	Severe (N=53)	
Non-prescription analgesics	63.2%	68.0%	67.4%	77.4%	3.35
Prescription analgesics	14.9%	12.4%	19.8%	17.0%	2.00
Sleeping pills	6.1%	3.1%	8.1%	3.8%	2.66
Antidepressants	2.6%	4.1%	9.3%	3.8%	5.15
Tranquilizers	1.8%	7.2%	7.0%	3.8%	4.51

¹⁾ χ^2 calculated for each 2 x 4 contingency table with type of medication entered as yes or no.

Table 28

Number of Spontaneous Abortions (Physical Abuse)

Number of Spontaneous Abortions	Non-abused women (N=355)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	271	76.3	34	79.1	2.44
1	42	11.8	7	16.3	
2+	42	11.8	2	4.7	

Chronic Pain

The respondents were asked about the frequency and intensity of "headaches" and "backaches" they experienced in addition to the

frequency in which their activities were limited by such events.

Physical Abuse

The Kruskal-Wallis one-way analysis of variance for ordinal data (SPSS, 1988) was used to compare the responses across groups. There was a significant difference in mean group ranks between physically abused women and non-abused women both in terms of the reported frequency of headaches and the reported frequency in which activities were limited by the headache. There was no significant difference between the groups in regard to the intensity of the headache (see Table 29).

Table 29

Kruskal-Wallis ANOVA for Headache Data
(Physical Abuse)

Variable	Mean Rank		χ^2
	Non-abused women (N=356)	Physically abused women (N=43)	
Frequency of headaches	193.55	253.40	10.33 ^{***}
Intensity of headaches	188.09 ¹	219.14 ²	2.96
Frequency activity limited	184.16 ³	241.49 ²	10.17 ^{***}

¹N = 340 (Sixteen non-abused women reported never having headaches.)

²N = 42 (One physically abused woman reported never having headaches.)

³N = 338

^{***}p < .01

Employment of the median test described by Siegel (1956), revealed that 21 women who were physically abused (48.8%) compared to 90 non-abused women (25.3%) exceeded the common median score of 3 ("occasionally") in regard to the frequency of headache ($\chi^2 = 9.46$, p <

.01). The common median value for the intensity of the headache was 3 ("moderate") and there was no significant difference between the two groups. However, 25 physically abused women (59.5%) compared to 116 non-abused women (34.3%) reported scores indicating how often their headaches limited their activity which exceeded the common median of 2 ("rarely") ($\chi^2 = 9.12, p < .01$). Table 30 summarizes the distribution of scores between the two groups.

Table 30
Distribution of Scores on Headache Items
(Physical Abuse)

Variable	Non-abused women (N=356)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
Frequency of headaches					12.66 ⁺
Never/rarely	134	37.6	7	16.3	
Occasionally	132	37.1	15	34.9	
Frequently/ every day	90	25.3	21	48.4	
Intensity of headaches ¹					2.89
Very slight/mild	99	29.1	8	19.0	
Moderate	155	45.6	19	45.2	
Severe/ excruciating	86	25.3	15	35.7	
Headaches limit activity					11.97 ⁺
Never/rarely	222	65.7	17	40.5	
Occasionally	74	21.9	13	31.0	
Frequently/ almost always/ always	42	12.4	12	28.6	

¹16 non-abused women and 1 physically abused woman reported never having headaches.

⁺p < .01

The analyses related to the problem of "headaches" were duplicated

for the problem of "backaches." In this case the Kruskal-Wallis one-way ANOVA revealed a significant difference between physically abused women and non-abused women in terms of their reported frequency of backaches and the intensity of the backaches, but not in terms of the frequency in which their activities were limited because of the backache (see Table 31).

Table 31
Kruskal-Wallis ANOVA for Backache Data
(Physical Abuse)

Variable	Mean Rank		χ^2
	Non-abused women (N=357)	Physically abused women (N=43)	
Frequency of backaches	195.90	238.67 ¹	5.25*
Intensity of backaches	164.45 ¹	201.83 ²	5.30*
Frequency activity limited	166.37 ³	183.79 ²	1.16

¹N = 296 (Sixty-one non-abused women reported never having backaches.)

²N = 41 (Two physically abused women reported never having backaches.)

³N = 295

*p < .05

The median test revealed no significant difference between the two groups in regard to the intensity of the backaches (common median = 3, "moderate") or how often the backaches limited activity (common median = 2, "rarely"). However, 19 women who were physically abused (44.2%), compared to 92 women who were free of physical abuse (25.8%) exceeded the common median of 3 ("occasionally") when describing the frequency of backaches ($\chi^2 = 5.61$, $p < .05$). Table 32 summarizes the distribution of scores between the two groups.

Table 32
Distribution of Scores on Backache Items
(Physical Abuse)

Variable	Non-abused women (N=357)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
Frequency of backaches					6.51*
Never/rarely	148	41.5	13	30.2	
Occasionally	117	32.8	11	25.6	
Frequently/ every day	92	25.8	19	44.2	
Intensity of backaches ¹					4.53
Very slight/mild	137	46.3	12	29.3	
Moderate	122	41.2	21	51.2	
Severe/ excruciating	37	12.5	8	19.5	
Backaches limit activity					2.06
Never/rarely	200	67.8	24	58.5	
Occasionally	58	19.7	12	29.3	
Frequently/ almost always/ always	37	12.5	5	12.2	

¹61 non-abused women and 2 physically abused women reported never having backaches.

*p < .05

Psychological Abuse

The responses to the "headache" and "backache" items were analyzed in relation to the exposure to psychological abuse. No significant differences were found for the four groups: no psychological abuse, minimal psychological abuse, moderate psychological abuse, and severe psychological abuse. However, a consistent trend was noted in that severely psychologically abused women had the highest mean ranks in terms of the frequency and the intensity of headaches and backaches and

in terms of the frequency in which their activities were limited because of headaches or backaches (see Table 33). Accordingly, the analysis was repeated comparing women who were severely psychologically abused to women who were free of psychological abuse.

Table 33
Kruskal-Wallis ANOVA for Headache and Backache Data
(Psychological Abuse)

Variable	Mean Rank				χ^2
	No ψ^1 abuse (N=113)	Minimal ψ abuse (N=97)	Moderate ψ abuse (N=86)	Severe ψ abuse (N=53)	
Frequency of headaches	164.60	172.35	184.17	187.14	2.75
Intensity of headaches	152.71 ²	175.00 ³	165.78 ⁴	184.00 ⁵	4.64
Headaches limit activity	153.30 ⁶	174.36 ⁷	161.40 ⁸	184.28 ⁹	4.65
Frequency of backaches	165.34 ⁸	178.66	170.44	199.77	4.51
Intensity of backaches	144.09 ⁹	129.75 ¹⁰	146.22 ¹¹	172.00 ¹²	7.73 ¹³
Backaches limit activity	138.90 ¹⁰	137.98 ¹⁰	145.85 ¹¹	164.06 ¹²	3.51

¹ ψ - Psychological

²N = 107; ³N = 93; ⁴N = 81; ⁵N = 52; ⁶N = 106; ⁷N = 92; ⁸N = 114; ⁹N = 85;

¹⁰N = 84; ¹¹N = 73; ¹²N = 47

¹³ χ^2 = 8.69, $p < .05$ when corrected for ties.

Severely psychologically abused women reported significantly more frequent backaches than women free of psychological abuse, but no differences were noted in relation to the headache data (see Table 34). The median test revealed no significant differences between the groups in terms of the headache and backache data. Table 35 summarizes the

distribution of scores between the two groups.

Table 34

Kruskal-Wallis ANOVA for Headache and Backache Data
(Severe Psychological Abuse)

Variable	Mean Rank		χ^2
	No psychological abuse (N=113)	Severe psych abuse (N=53)	
Frequency of headaches	80.07	90.81	1.80
Intensity of headaches	75.42 ¹	89.43 ²	3.24
Headaches limit activity	74.84 ³	88.99 ²	3.33
Frequency of backaches	78.91 ⁴	94.95	3.98 [*]
Intensity of backaches	62.09 ⁵	74.48 ⁶	3.18
Backaches limit activity	62.02 ⁷	73.11 ⁶	2.57

¹N = 107; ²N = 52; ³N = 106; ⁴N = 114; ⁵N = 85; ⁶N = 47; ⁷N = 84

^{*}p < .05

Table 35

Distribution of Scores on Headache and Backache Items
(Severe Psychological Abuse)

Variable	No psychological abuse (N=113)		severe psychological abuse (N=53)		χ^2
	Number	%	Number	%	
Frequency of headaches					1.93
Never/rarely	49	43.5	17	32.1	
Occasionally	38	33.6	21	39.6	
Frequently/ every day	26	23.0	15	28.3	

Table 35 (continued)

Distribution of Scores on Headache and Backache Items

(Severe Psychological Abuse)

Variable	No psychological abuse (N=113)		severe psychological abuse (N=53)		χ^2
	Number	%	Number	%	
Intensity of headaches ¹					7.28*
Very slight/mild	43	40.2	10	19.2	
Moderate	36	33.6	26	50.0	
Severe/ excruciating	28	26.2	16	30.8	
Headaches limit activity					4.34
Never/rarely	73	68.9	29	55.8	
Occasionally	19	17.9	17	32.7	
Frequently/ almost always/ always	14	13.2	6	11.5	
Frequency of backaches					4.52
Never/rarely	50	43.9	19	35.8	
Occasionally	37	32.5	13	24.5	
Frequently/ every day	27	23.7	21	39.6	
Intensity of backaches ²					2.11
Very slight/mild	39	45.9	16	34.0	
Moderate	34	40.0	21	44.7	
Severe/ excruciating	12	14.1	10	21.3	
Backaches limit activity					2.82
Never/rarely	58	69.0	28	59.6	
Occasionally	13	15.5	13	27.7	
Frequently/ almost always/ always	13	15.5	6	12.8	

¹6 non-abused women and 1 severely psychologically abused women reported never having headaches.

²29 non-abused women and 6 severely psychologically abused women reported never having backaches.

*p < .05

Health Care Utilisation Patterns

Physical Abuse

The respondents were asked to report the number of contacts they may have had with family physicians, hospital emergency rooms, "medi-centres," public or community health nurses, psychiatrists, in-patient hospitalization, and other health services in the preceeding year. These data are first presented in relation to physical abuse, followed by the effect of psychological abuse on such contacts. Prior to analysis, the number of visits to family physicians, to emergency rooms, and to "medi-centres," contacts with public or community health nurses, and the number of days hospitalized were examined for accuracy of data entry and missing values.

The majority of women, regardless of their physical abuse status, had contact with a family physician in the previous year. There was no significant difference in the proportions of the two groups who had contact with a family physician; 79.1% of women who were physically abused and 83.8% of women free of physical abuse visited a family physician in the previous year ($\chi^2 = 0.31$, $p > .05$). Nor was there a significant difference in the total number of visits to a family physician over the previous year between the two groups. Table 36 summarizes the number of visits made to a family physician in the previous year.

Significant differences were found between the two groups of women in terms of the proportion who had utilized emergency room services,

"medi-centre" services, public or community health nursing services, psychiatric care, psychologists' care, and in-patient hospital care over the previous year (see Table 37).

Table 36

Number of Visits to Family Physician (Physical Abuse)

Number of visits	Non-abused women (N=355)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	58	16.3	9	20.9	3.9
1-5	221	62.3	21	48.8	
6-10	39	11.0	5	11.6	
11+	37	10.4	8	18.6	

Table 37

Health Care Utilization Patterns of Physically Abused Women

Health Care Service	Percentage		$\chi^{2(1)}$
	Non-abused women (N=357)	Abused women (N=43)	
Family physician	83.8%	79.1%	0.31
Hospital emergency room	19.3%	39.5%	8.13 ⁻
"Medi-centre"	40.9%	58.1%	3.98 [*]
Public/community health nursing	25.8%	48.8%	8.97 ⁻
Psychiatric care	3.1%	18.6%	17.15 ⁻
In-patient hospitalization	17.6%	34.9%	6.21 [*]
Chiropractic care	14.1%	11.6%	0.04
Pain clinic	1.1%	0.0%	0.00
Psychologists' care	5.3%	20.9%	12.06 ⁻
Acupuncture	1.4%	0.0%	0.00

⁽¹⁾After Yates' correction. χ^2 calculated for each health care service as a 2 x 2 contingency table with responses coded yes or no by physical abuse status.

^{*}p < .05

⁻p < .01

⁻p < .001

The respondents were provided with the opportunity to identify other health care services they had utilized in the previous year. Additional services mentioned ranged from medical specialists such as gynaecologists and orthopaedic specialists to physiotherapists and homeopaths. Of the 63 additional health care contacts identified, women who were free from physical abuse (89.3% of the sample) accounted for 92.1%.

Not only did more physically abused women utilize emergency room services than did non-abused women, they utilized the service more frequently than non-abused women (see Table 38 for the distribution of number of visits to emergency rooms).

Table 38
Number of Visits to Emergency Rooms (Physical Abuse)

Number of visits	Non-abused women (N=357)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	288	80.7	26	60.5	25.99 ^{***}
1	49	13.7	5	11.6	
2+	20	5.6	12	27.9	

^{***}p < .001

Physically abused women were not found to utilize medi-centres with greater frequency than non-abused women (see Table 39). However, physically abused women were noted to utilize public or community health nurses' services more frequently than non-abused women (see Table 40).

Table 39

Number of Visits to Medi-centres (Physical Abuse) ,

Number of visits	Non-abused women (N=357)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	211	59.1	18	41.9	4.96
1	60	16.8	9	20.9	
2+	86	24.1	16	37.2	

Table 40

Number of Contacts with Public or Community Health Nurses
(Physical Abuse)

Number of contacts	Non-abused women (N=357)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	265	74.2	22	51.2	11.83 ⁻
1	33	9.2	5	11.6	
2+	59	16.5	16	37.2	

⁻p < .01

There was a significant difference found between the groups in terms of the number of days spent as a patient in the hospital (see Table 41).

Table 41

Number of Days Hospitalized (Physical Abuse)

Number of days	Non-abused women (N=357)		Physically abused women (N=43)		χ^2
	Number	%	Number	%	
0	294	82.4	28	65.1	7.52*
1-3	33	9.2	7	16.3	
4+	30	8.4	8	18.6	

*p < .05

Psychological Abuse

Exposure to psychological abuse does not appear to be associated with the utilization of the majority of health care services examined in this study. Indeed, psychological abuse was only significantly associated with utilization of psychological care, with 13.2% of women who were severely psychologically abused reporting visiting a psychologist in the previous year, compared to 2.6% of women free of psychological abuse (see Table 42). However, there is a trend toward increased utilization of hospital emergency rooms, public or community health nursing services, and in-patient hospitalization as the degree of psychological abuse increases.

Although there was no significant difference in the proportion of women who visited a family physician in the previous year, or in the frequency distribution of visits made, there is a trend toward more frequent contact with a family physician as the degree of psychological abuse increases (see Table 43).

Table 42

Health Care Utilization Patterns of Psychologically Abused Women

Health Care Service	Percentage				χ^2
	No $\downarrow^1$ abuse (N=114)	Min $\downarrow$ abuse (N=97)	Mod $\downarrow$ abuse (N=86)	Severe $\downarrow$ abuse (N=53)	
Family physician	83.3	83.5	84.9	83.0	0.12
Hospital emergency room	17.5	16.5	20.9	26.4	2.57
"Medi-centre"	34.2	41.2	45.3	45.3	3.23
Public/community health nursing	22.8	19.6	31.4	34.0	5.75
Psychiatric care	2.6	2.1	4.7	3.8	1.18
In-patient hospitalization	14.0	14.4	20.9	24.5	4.11
Chiropractic care	13.2	13.4	18.6	11.5	1.81
Pain clinic	0.0	1.0	2.3	1.9	2.65
Psychologists' care	2.6	0.0	9.3	13.2	16.85 ⁻⁻⁻
Acupuncture	0.9	3.1	1.2	0.0	2.97

 $\downarrow^1$ - Psychological⁻⁻⁻p < .001

Table 43

Number of Visits to Family Physician

(Psychological Abuse)

Number of visits	No $\downarrow^1$ abuse (N=112)		Min $\downarrow$ abuse (N=97)		Mod $\downarrow$ abuse (N=86)		Severe $\downarrow$ abuse (N=53)		χ^2
	n	%	n	%	n	%	n	%	
0	19	17.0	16	16.5	13	15.1	9	17.0	9.00
1-5	75	67.0	64	66.0	52	60.5	26	49.1	
6-10	10	8.9	9	9.3	10	11.6	9	17.0	
11+	8	7.1	8	8.2	11	12.8	9	17.0	

 $\downarrow^1$ - Psychological

There was no effect of psychological abuse on the number of visits made to an emergency room (see Table 44), or on the number of visits to a medi-centre (see Table 45). However, women who were severely psychologically abused had more frequent contact with public or community health nurses than women who were free of psychological abuse and than women who were exposed to minimal psychological abuse (see Table 46).

Table 44

Number of Visits to Emergency Rooms
(Psychological Abuse)

Number of visits	No $\downarrow$ ¹ abuse (N=114)		Min $\downarrow$ abuse (N=97)		Mod $\downarrow$ abuse (N=86)		Severe $\downarrow$ abuse (N=53)		χ^2
	n	%	n	%	n	%	n	%	
0	94	82.5	81	83.5	68	79.1	39	73.6	2.91
1	15	13.2	11	11.3	12	14.0	10	18.9	
2+	5	4.4	5	5.2	6	7.0	4	7.5	

$\downarrow$ - Psychological

Although not statistically significant, women who were severely psychologically abused were hospitalized for more days in the previous year than women who were free of psychological abuse (see Table 47).

Table 45
Number of Visits to Medi-centres
(Psychological Abuse)

Number of visits	No $\downarrow^1$ abuse (N=114)		Min $\downarrow$ abuse (N=97)		Mod $\downarrow$ abuse (N=86)		Severe $\downarrow$ abuse (N=53)		χ^2
	n	%	n	%	n	%	n	%	
0	75	65.8	57	58.8	47	54.7	29	54.7	3.29
1	17	14.9	17	17.5	16	18.6	10	18.9	
2+	22	19.3	23	23.7	23	26.7	14	26.4	

$\downarrow^1$ - Psychological

Table 46
Number of Visits to Public or Community Health Nurses
(Psychological Abuse)

Number of visits	No $\downarrow^1$ abuse (N=114)		Min $\downarrow$ abuse (N=97)		Mod $\downarrow$ abuse (N=86)		Severe $\downarrow$ abuse (N=53)		χ^2
	n	%	n	%	n	%	n	%	
0	88	77.2	78	80.4	59	68.6	35	66.0	23.17 ⁻⁻⁻
1	13	11.4	10	10.3	8	9.3	0	0.0	
2+	13	11.4	9	9.3	19	22.1	18	34.0	

$\downarrow^1$ - Psychological

⁻⁻⁻p < .001

Table 47

Number of Days Hospitalized

(Psychological Abuse)

Number of days	No $\downarrow$ abuse (N=114)		Min $\downarrow$ abuse (N=97)		Mod $\downarrow$ abuse (N=86)		Severe $\downarrow$ abuse (N=53)		χ^2
	n	%	n	%	n	%	n	%	
0	98	86.0	83	85.6	68	79.1	40	75.5	6.61
1-3	8	7.0	6	6.2	12	14.0	6	11.3	
4+	8	7.0	8	8.2	6	7.0	7	13.2	

 $\downarrow$ - Psychological

CHAPTER V

DISCUSSION

This final chapter provides a discussion of some possible limitations of the work, a summary of the major findings of the study, and finally some comments regarding the implications that the findings have for the delivery of health care.

Limitations

Prior to a discussion of specific limitations that may be associated with this study, a few comments related to the overall design are warranted. Some may argue that a survey method such as the one employed in this study is inappropriate because the researcher could not obtain a comprehensive account of the context in which the abuse occurred, nor a clear picture of the nature of the health problems examined. However, the degree of generalizability obtained in this study as a result of the probability sampling technique employed, offers a major contribution to the extant knowledge regarding abuse against women and health.

Undoubtedly a research design which allowed for in-depth accounts and analyses would provide a significant contribution and it is recommended that such a study be conducted. However, caution is advised when one employs a convenience sample in the study of wife abuse, whether one obtains the sample from emergency shelters or the community

at large. Volunteer subjects for research often differ from non-volunteers. For example, Washburn and Frieze (cited in Browne, 1987) found that abused women who responded to posted notices differed from those referred by shelters. They were more likely to work full-time, had more education and higher incomes, and had experienced less violence than women in the shelter group. Further, if a sample is obtained from either a shelter or the community, the researcher is likely to miss extremely low levels of abuse. Volunteers and women in shelters do not typically include women experiencing very "minor" abuse in their relationships or who do not think of themselves as abused.

Several limitations of this study should be acknowledged. First, recall bias may have resulted in inaccuracies in the collection of data. The informants may have reported health problems and health care utilization in a non-comparable manner (Hennekens & Buring, 1987). For example, women who had experienced abuse may have remembered their health problems and utilization of health services differently from those who were not abused, particularly if they believed that the abuse was the cause of their health problems.

Second, the method employed in this study warrants probable rather than definitive health problems as no medical examinations were conducted to validate the data collected. Further, because of the lack of longitudinal data, one cannot be sure of the temporal relationship of physical and/or psychological abuse and health problems. That is, individual characteristics and problems, such as low self-esteem, alcohol dependency, and depression can be interpreted as either precipitants or symptoms of abuse. However, there is some evidence

(Haber, 1985; Haber & Roos, 1984; Kurz & Stark, 1988; Stark et al., 1981; Walker, 1984) to support the temporal ordering of events presupposed by this study. For example, Kurz and Stark reported that the risk of attempted suicide was approximately five times greater for physically abused women than for women free of abuse only after the onset of "abusive injury". Further, Stark et al. reported that problems of alcoholism and drug addiction identified in a sample of abused women occurred after the onset of abuse. Finally, Haber and Haber and Roos reported that in a group of abused women who sought assistance for chronic pain problems, all of the problems followed the first incident of abuse.

Third, as the issue of abuse is sensitive in nature, it is likely that some under-reporting occurred. The actual prevalence of wife abuse in this sample may be underestimated for at least four reasons: (a) for some people, physical aggression may be such a part of family life that it is simply not noteworthy; (b) the shame involved in being a victim of abuse may have caused some women to fail to report their abuse; (c) abused women may feel anxious about disclosing information about their abuse because they may fear reprisal from the abuser; and (d) only women who were living with, or in the previous year had lived with, their husband were eligible for the study. Thus, women who were separated or divorced from their husbands prior to the study year because of abuse were deliberately excluded from the study (Straus et al., 1980). The extent to which subjects under-report abuse is unknown, however researchers agree that under-reporting is significant (Smith, 1986; Szinovacz, 1983).

Fourth, the findings of this study are limited to those individuals with telephones. Because individuals without telephones tend to differ socioeconomically from the rest of the population, some non-coverage bias may have occurred. It is estimated that less than 5% of the population in urban centres in Canada do not have telephones (H. Krahn, personal communication, April 15, 1991). Although this underrepresentation appears to be small, it may be a significant problem in a survey on wife abuse, particularly as abuse appears to occur disproportionately in low-income households (Brinkerhoff & Lupri, 1988; Kennedy & Dutton, 1987, 1989; Smith, 1987).

Psychological abuse, although partially measured by the Conflict Tactics Scales (CTS) (Straus, 1979), has rarely been investigated. Researchers generally ignore this subscale of the CTS and concentrate their attention on physical abuse. Undoubtedly, psychological abuse is more elusive and subjective than physical abuse, which makes its identification difficult. It is acknowledged that although the CTS is confined to verbal aggression, symbolic acts and threats of physical aggression, psychological abuse is most likely multi-dimensional in nature. For example, Walker (1979) defined several categories of psychological abuse: verbal battering, social humiliation, social isolation, and economic deprivation. Unfortunately, a measure that can be used to assess a wide range of psychologically abusive behaviours is not currently available. Clearly, there is a need for such a measure.⁶ It should be recognized that the health consequences of psychological

⁶The work of Tolman (1989) in the development of the Psychological Maltreatment of Women Inventory, although in the early stages, seems promising.

abuse have not been studied and this study provides a basis from which further research can be conducted.

Finally, some might argue that a telephone survey, rather than a face-to-face survey limits the validity of a study's findings. Smith (1989) examined the strengths and weaknesses of telephone versus face-to-face surveys on wife abuse. He concluded that telephone surveys compare favourably to face-to-face surveys particularly in terms of the representativeness of the sample and of the quality of the data. Indeed, no difference was found between physical abuse incidence rates uncovered by the Population Research Laboratory study (which relied on face-to-face interviews in Edmonton) and by this study.

Discussion and Conclusions

Incidence Rates

The annual incidence rate of physical abuse experienced by wives in Alberta appears to be relatively stable over time. The rate of 10.7 per 100 women found in this study, is statistically equivalent to the rate found in the Population Research Laboratory, University of Alberta (1987) study (12.5 per 100 women). Further, these rates are comparable to Kennedy and Dutton's (1989) conclusion that 11.2 per 100 wives in the Province of Alberta are physically abused. It is worth noting that Kennedy and Dutton concluded that wife abuse rates in Alberta were comparable to rates in all American regions. The present study found no evidence to dispute this claim.

Kennedy and Dutton (1989) indicated that severe wife abuse rates may be lower in Alberta than in the USA. This claim is not supported by the findings of this study. Kennedy and Dutton found a rate of 2.3 per 100 women for severe violence in the Province of Alberta and when the data upon which they based their conclusions were stratified so that the subjects met the inclusion criteria of the current study, a rate of 3.3 per 100 women in Edmonton were found to experience severe violence. The current study found that 5.2 per 100 women in Edmonton were exposed to severe violence, including the use of a knife or gun. This fluctuation is most likely a reflection of wide confidence intervals which result because of the relatively rare occurrence of severe abuse and the small sample sizes of the studies, rather than an indication that the rate is increasing. What is noteworthy, however, is that the severe violence rate of 5.2 per 100 women, found in this study, exceeds the 1985 American rate of 3.0 per 100 women, reported by Straus and Gelles (1986).

Kennedy and Dutton (1989) concluded that if the American rate of severe violence against women was higher it "should not be too surprising since the overall rates of crime are lower in Canada than in the US" (p. 49). This is indeed the case if, for example, we compare deaths caused by homicide and injury purposely inflicted by other persons for all ages and both sexes. There are 21.9 homicides per 100,000 in the USA compared with 2.9 per 100,000 in Canada (Magellan, 1991). However, a very different picture emerges when we compare sex and age specific rates. In the age group 25-34 years, the Canadian rate of deaths caused by homicide for women is 2.1 per 100,000 compared to

6.9 per 100,000 for American women (World Health Organization, 1989). Further, one third of all American women killed are killed by their partners (Magellan, 1991), whereas the corresponding rate in Canada is 62% ("Against Violence," 1991). Thus, the rates of homicides perpetrated by male partners against Canadian and American women are remarkably similar. Perhaps Canadian women only suffer less violence than their American counterparts when it occurs outside their homes and at the hands of individuals other than their partners.

Kennedy and Dutton (1989) reported that the use of a knife or gun was not reported by the population in Alberta. Yet, this study found that 0.7% of women reported such violent acts. It is also noteworthy that in the month immediately following the data collection period of this study, two women were murdered by their husbands and one woman was shot and maimed by her husband in the City of Edmonton (Schuler, 1991). A knife or gun was involved in each of the cases.

Based on this study only limited conclusions can be drawn regarding the incidence of psychological abuse in Edmonton. It is acknowledged that the Conflict Tactics Scales (CTS) (Straus, 1979) provides a very limited definition of psychological abuse in that it only address verbal aggression and symbolic acts of aggression, such as insults or threats to hurt. Further, the categorization of psychological abuse utilized in this study was admittedly arbitrary in nature. However, the fact that health problems, such as somatic complaints, anxiety and insomnia, and alcoholism were associated with severe psychological abuse may be viewed as evidence of the criterion-related validity of the instrument.

Straus (1979) provided percentile norms for husband to wife psychological abuse based on data obtained from an American national probability sample. The findings of the Edmonton sample are generally comparable to the American normative data in that 32.4% of the women in Edmonton responded negatively to all of the items on the psychological abuse subscale, compared to 30% of Americans. Twenty percent of American women obtained scores of 10 or more (severe psychological abuse) compared to 15.6% of women in Edmonton.

Demographic Factors

The findings of this study suggest that marital status is strongly related to physical abuse with 70.6% of women who had their relationships end in the previous year, either through separation or divorce, reporting that they were physically abused. Although the subsample of women who were single, separated, or divorced was small (N = 17), this finding further supports Kennedy and Dutton's (1989) observation that physical abuse is associated with relationship breakup. However, it is not clear if abuse results in relationship breakup or if abuse is initiated at the time of relationship breakdown. Browne (1987) reported that abuse is usually initiated within the first year of a couple living together with many of the first incidents occurring at the time of the wedding or shortly thereafter. She further noted that abuse that occurs in dating relationships is often the result of a woman's attempt to end the relationship. Perhaps it is the case that when a married woman threatens to end a relationship the abuse escalates. For

example, the three women in the City of Edmonton who were shot or stabbed in the month immediately following the data collection for this study had all filed for divorce ("Against Violence," 1991). Clearly, further research is required in this regard.

The analysis of demographic factors revealed that young women, in relatively young relationships, who were married or living with men who were unemployed or in school, or who had household incomes of less than \$20,000 per year were at highest risk for physical abuse. However, the only women free of physical abuse were women over the age of 65.⁷ Physical abuse is certainly not confined to a particular substratum of the population.

Based on a discriminant function analysis, a woman's marital status, whether or not her partner is an income earner, the couple's combined income and the woman's age are the best predictors of whether or not a woman is physically abused. However, this knowledge does not appear to have much utility in terms of assisting with the identification of physically abused women. In epidemiological terms, we can say that a screening device, based on these demographic characteristics would have high specificity, but very low sensitivity. That is, we could correctly identify women free of physical abuse (98.1% correctly classified), but fail to identify the majority of physically abused women (28.2% correct classification).

Marital status, age, and the length of the relationship are also

⁷Women over the age of 65 were found to be free of physical abuse perpetrated by husbands. This does not suggest that they were free of abuse that may have been perpetrated by others, such as children or care-givers, or that their husbands did not abuse them when they were younger.

correlated with psychological abuse, with women who are severely psychologically abused more likely to be young, to be in relatively new relationships, and to have ended the relationship in the previous year. However, again this information is not particularly impressive in terms of devising identification schemes. The classification scheme of the discriminant function analysis demonstrated that demographic variables as predictors were only capable of correctly classifying 53.8% of women who were free of psychological abuse and 20.9% of women who were severely psychologically abused. Women, regardless of age, income, or education can be subjected to severe psychological abuse.

It is believed that this finding is particularly noteworthy because unconscious biases or stereotypical images based on age, social class, race, or ethnicity may influence professional detection of abuse. For example, Turbett and O'Toole (cited in Gelles & Straus, 1988; Saunders & Azar, 1989) found that among physicians and nurses there seems to be a tendency to regard childhood injuries as intentional if the family is of lower social class and from a minority group.

Health Problems

Physically abused women did not report fractures with greater frequency than did women who were free of physical abuse. However, more physically abused women sustained large bruises, lacerations which required suturing, and sprains or strains over the previous year than did women free of physical abuse. The anatomical location of these injuries were somewhat different for physically abused women with a

small proportion reporting that the injuries occurred to the face, chest and neck area, whereas women who were free of physical abuse did not report these sites. In general, the reported physical injuries sustained by women who experienced physical abuse were very similar to those described by Stark et al. (1981) and Appleton (1980).

Several authors have suggested that physically abused women tend to be injured in the neck, face and chest region and that indices of suspicion should be raised when such injuries are encountered by health professionals (Appleton, 1980; Blair, 1986; Goldberg & Carey, 1982; Greany, 1984; Kurz et al., undated; Ontario Medical Association, 1988; Stark et al., 1981). Although this may be an indication that a woman is physically abused, it would seem that too much emphasis has been placed on this observation. Only a small proportion of the women who were physically abused reported injuries to these sites and indeed some provided additional information indicating that their husbands made a point of not injuring them where the wound might be observed. That is, their husbands deliberately injured them where the wounds could be covered by clothing.

For the most part, the injuries reported by women who were physically abused were not extraordinary in that they were not particularly different from injuries reported by women free of physical abuse, nor were they severe. This is not meant to suggest that the injuries sustained by women who are physically abused are inconsequential or that physically abused women do not have serious health problems. This simply suggests that injuries, on their own, are not reliable indicators of physical abuse.

As in the study described by Jaffe et al. (1986), women who were physically abused were found to have significantly more somatic complaints, higher levels of anxiety and insomnia, greater social dysfunction, and more symptoms of depression than women who were free of physical abuse. Indeed, the General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979) scores obtained in this study by physically abused women, who resided in the community, were comparable to the GHQ scores of physically abused women who resided in emergency shelters, as described by Jaffe et al. Jaffe et al. compared their sample of physically abused women to women from non-violent families who responded to a newspaper advertisement. Women who were receiving mental health services (beyond assessment and diagnosis) were excluded from their study. In the current study, no exclusion criteria were imposed on the comparison group of women free of physical abuse. That is, some of the women free of physical abuse were likely to have had mental health problems and to have received mental health care. This may explain why the comparison group in the Jaffe et al. study obtained lower GHQ scores than the comparison group in this study. Yet, despite this difference, physically abused women continue to have significantly higher scores than a probability sample of women free of physical abuse.

The analysis also revealed that women who were severely psychologically abused had more mental health symptomatology than women who were free of psychological abuse. These women reported more somatic complaints, higher levels of anxiety and insomnia and more social dysfunction than women free of psychological abuse. These scores, however, were not as high as those reported by women who experienced

physical abuse. It is also worth noting that 93% of physically abused women were subjected to severe psychological abuse.

Very little research has addressed the issue of psychological abuse. Gelles and Straus (1988) suggested that psychological abuse, the most hidden, most insidious, and least researched form of abuse is perhaps the most damaging form. "There is little doubt that direct or indirect acts on one's self concept leave deep and long-lasting scars" (Gelles & Straus, 1988, p. 68). Walker (1979) found that most of the abused women in her study described incidents involving psychological abuse and verbal harassment as their worst abuse experiences, whether or not they had been physically abused. The findings of this study certainly support these contentions although women who were both physically and psychologically abused scored significantly higher on three of the four General Health Questionnaire subscales (somatic complaints, anxiety and insomnia, and depression) than women who were solely subjected to severe psychological abuse.

A significant relationship between alcohol dependency and experiencing physical and/or psychological abuse was uncovered in this study. The analysis revealed that 16.3% of women who were physically abused were alcohol dependent in the previous year and 11.3% of women who suffered from severe psychological abuse were alcohol dependent in the previous year. These rates are markedly higher than the life time prevalence rate of 6.7% in Edmonton women aged 18 years of age and older reported by Bland, Orn and Newman (1988).

Concern has been expressed that alcohol dependency and family violence fields are operating separately and with different types of

services for their clients, even though alcohol dependency and abuse often occur simultaneously (Wilcox, 1991). Gillis (1991), in describing a three- to six-month treatment program for chemically dependent women, reported that most of the women coming into the program had suffered abuse. The majority of women reported that they consumed alcohol as a way to cope with the guilt, shame, low self-esteem, self-blame and anger caused by the abuse. Clearly, treatment programs for alcohol dependency must acknowledge the abuse women may have suffered and provide appropriate resources in terms of support, counselling, and follow-up.

Physically abused women were found to experience more frequent headaches than women free of physical abuse and reported that such headaches limited their activities more frequently than did women who were free of physical abuse. They also reported more frequent backaches and backaches with greater intensity than non-abused women. Women who were severely psychologically abused did not have greater problems with headache and backache than did women who were free of psychological abuse.

Domino and Haber (1987) reported that abused women with chronic headaches appeared to experience more suffering in terms of constancy of their pain, number of invasive medical procedures, and degree of psychological distress. The implications of the findings of Domino and Haber's work and of this current study are pertinent to early and accurate identification of headache and backache patients who are also victims of physical abuse. Early identification and the cessation of the abuse may prevent long-term chronic pain difficulties.

There were no differences in the utilization of medications across

the groups, but it should be noted that 23.3% of physically abused women had taken prescription analgesics in the previous month, and 11.6% had taken tranquilizers. Dobash and Dobash (1979) also noted a tendency of physicians to prescribe analgesics and tranquilizers to abused women. Although it can not be stated with certainty that the prescriptions were provided in order to alleviate symptoms that were directly related to abuse, the wisdom of prescribing such drugs is questionable. First, as Elston, Fuller, and Murch (cited in Dobash & Dobash, 1979) pointed out, inducing drowsiness, ataxis, giddiness and loss of control of voluntary movements, all side effects of analgesics and tranquilizers, may be dangerous at times of crisis. They further pointed out that treating women for anxiety and other reactions to their partners' abuse suggests that they are being treated for the problem, not the partner.

The question of whether pregnant women are at higher risk for physical abuse by their husbands was not addressed in this study and extreme caution is advised when interpreting the results of the spontaneous abortion item of this study. However, it was found that physically abused women did not report spontaneous abortions with greater frequency than women who were free of physical abuse. This finding is inconsistent with the conclusion of Stark et al. (1979) that physically abused women experience a significantly greater number of spontaneous abortions.

Health Care Utilization

Women who experience physical abuse use a wide range of health

care services and have considerable contact with health care professionals. More physically abused women utilized hospital emergency rooms, walk-in clinics such as "medi-centres," public or community health nursing services, in-patient hospitalization and psychiatric and psychological care than did women who were free of physical abuse. In contrast, severely psychologically abused women appeared only to utilize psychological care with significantly greater frequency than women suffering from either less severe forms of psychological abuse or no psychological abuse. However, there is a trend toward increased utilization of hospital emergency room, public or community health nursing services, and in-patient hospitalization as the degree of psychological abuse increases. The findings of this study provide further support to the claims of Brismar et al. (1987) and Stark et al. (1981) that the consumption of health care is considerably greater in abused women than in women who are free of abuse.

It may be argued that the effect of socio-economic status is responsible for the association detected between abuse status and health care utilization in this study. It is often suggested that income is inversely related to health care utilization and in light of the disproportionate occurrence of physical and psychological abuse in lower income couples, socio-economic status may be a confounding variable. However, Manga (1987) reported, based on Canada Health Survey data (Canada Health Survey, 1981), that the probability of a hospital admission and a physician visit is independent of the individual's economic status when other determinants of use or nonuse are controlled for. The conclusion that family income is not a significant determinant

of the use or nonuse of physician or hospital services is consistent with results reported in several other Canadian studies (e.g., Barer, Manga, Shillington, & Siegel, 1982; Broyles, Manga, Binder, Angus, & Charette, 1983; Manga, 1978; Manga, Broyles, & Angus, 1984; Siemiatycki, Richardson, & Pless, 1980).

Although family income is not a significant determinant of health care utilization, there is an abundance of evidence to suggest that the poor experience inferior health status compared to the non-poor in Canada (e.g., Canada Health Survey, 1981; Wigle & Mao, 1980; Wilkins & Adams, 1983). What is of interest in relation to this study is that although physical and severe psychological abuse occurred most frequently in lower income families, combined income was found to be a poor predictor of general health status, whereas a woman's physical abuse status accounted for a significant proportion of the variance in the respondents' reported general health.

Recommendations

The findings of this study suggest that in addition to the immediate threat of injury, physically abused and severely psychologically abused women have multiple health problems and are frequent consumers of the health care system. It is also suggested that physically abused women seek health care for more than the treatment of injuries and that health care professionals have an important role to play in assisting women who are abused.

To date, the health care system's response to abuse has been slow

and sporadic (Kurz & Stark, 1988). For the most part, health care intervention programs designed specifically for abused women have been centred in hospital emergency rooms and much of the emphasis has been placed on injury. The findings of this study should make it evident to health care practitioners that it is not sufficient to limit our attention to the emergency room setting and to expect that we will identify abused women solely on the basis of particular injuries. Most likely a woman presenting with a "blackened" eye is physically abused, but what is more likely is that many physically abused women seek assistance for somatic complaints, anxiety and/or insomnia, depression, chronic pain problems such as headache or backache, alcoholism, and so forth. Community or public health nurses are most likely to come in contact with the abused woman because she presents her children for immunization or her new infant to a "baby clinic." Nurses in the hospital setting are most likely to come in contact with her because she is admitted in order to deliver her baby.

Health professionals will not necessarily know when they encounter a woman who is the victim of abuse. Indeed, many abused women are never identified as such. This does not result, however, because of an unwillingness of women to admit their abuse, but rather because health professionals are generally not accustomed to identifying social factors as the underlying cause of health problems (Stark et al., 1979), are not trained to assess for abuse, may hold attitudes that mitigate against their involvement, may be indifferent to the problem (Saunders & Azar, 1989) or may be subject to sexist biases (Bograd, 1982). It is essential that health care practitioners, in all settings, include

standardized intake questions concerning abuse and systematically probe for its occurrence (Bograd, 1982). Several protocols have been developed to educate and assist health professionals in the identification, evaluation, documentation, and referral of women who are abused (Finley, 1981; Ghent, Da Sylva, & Farren, 1985; Goldberg & Carey, 1982; Greany, 1984; Health and Welfare Canada, 1989; Kurz et al., undated; McGrath et al., 1980; Ontario Medical Association, 1988).

Exposure to physical abuse and severe psychological abuse are primary health problems. That is to say, abuse is not simply a causal factor in the development of health problems. It is not appropriate for health professionals to focus on the consequences and disregard the root cause. It is easy to ignore abuse as a primary health issue, and to respond simply to the secondary problems such as injuries, alcoholism, depression, and anxiety. But, the lack of direct intervention with the abuse is equivalent to an implicit acceptance of abuse as either normative or understandable. Further, the failure to recognize that a woman is in crisis because of abuse may result in inappropriate interventions. First, interventions designed only to address secondary problems may be wholly ineffective against the "condition" which will only be resolved when the abuse ends (Stark et al., 1979). Second, treating health concerns without acknowledging their etiology may compound an abused woman's guilt and low self-esteem while reinforcing her erroneous belief that she is responsible for the abuse (Bograd, 1982). Finally, the administration of medications such as tranquilizers and prescription analgesics may desensitize the woman so that her coping skills are reduced, placing her a greater risk of injury or murder

(Walker, 1979).

It is hoped that the findings of this study will impress upon the reader that abuse, whether physical or psychological, directed against women by their partners is far too common and can be devastating to a woman's health. With this information it is further hoped that health professionals in particular will assume an increasingly active role in the identification of and intervention with abused women. Much more needs to be learned about why abuse is not detected and what methods will enhance professionals' abilities to detect abuse. Further investigation can determine which health professionals need the most training and the type of training they need. There is also a need to further our understanding of the reasons why some health professionals are reluctant to acknowledge the role they can play in this very serious problem.

At a time when the rising cost of health care is of major concern, the medical costs alone that result because of abuse directed against women must be considered. If for no other reason than to curb the financial burden, health professionals must involve themselves in the provision of effective and appropriate care to women who are abused. Health professionals must strive to make the correct diagnosis, arrange for the protection of victims, and become increasingly involved in the prevention of violence. Clearly, this is a public health problem of significant proportion.

It is not the intention of this author to suggest that health care professionals can and should provide comprehensive services to women who are abused. What is necessary, however, is that health professionals

acknowledge the role that they can play by accurately identifying or acknowledging women who are victims of abuse, by identifying the underlying cause(s) of their health problems, by assisting them with their health care concerns, and referring them to appropriate social, legal, and criminal justice services. This sort of approach, in order to be effective, is contingent upon an interdisciplinary model in which cooperative approaches are designed to promote a more thorough understanding of the issues involved, to ensure better services to clients, to ensure more efficient use of resources, and to reduce system-induced trauma (Interdisciplinary Project on Domestic Violence, 1988).

REFERENCES

- Against violence. (1991, February 24). *Edmonton Journal*, p. A10.
- Anderson, A. B., Basilevsky, A., & Hum, D. P. J. (1983). Missing data: A review of the literature. In P. H. Rossi, J. D. Wright, & A. B. Anderson (Eds.), *Handbook of survey research* (pp. 415-494). San Diego, CA: Academic Press.
- Appleton, W. (1980). The battered woman syndrome. *Annals of Emergency Medicine*, 9, 84-91.
- Arias, I., & Beach, S. R. H. (1987). Validity of self-reports of marital violence. *Journal of Family Violence*, 2, 139-149.
- Asberg, M., Perris, C., Schalling, E., & Sedvall, G. (1978). The CPRS: Development and applications of a psychiatric rating scale. *Acta Psychiatrica Scandinavica, Suppl. 271*, 5-29.
- Banks, M. H. (1983). Validation of the General Health Questionnaire in a young community sample. *Psychological Medicine*, 13, 349-353.
- Barer, M. L., Manga, P., Shillington, R., & Siegel, G. (1982). *Income class and hospital use in Ontario*. Toronto, Ontario: Ontario Economic Council.
- Barling, J., O'Leary, K. D., Jouriles, E. N., Vivian, D., & MacEwen, K. E. (1987). Factor similarity of the Conflict Tactics Scales across samples, spouses, and sites: Issues and implications. *Journal of Family Violence*, 2, 37-54.
- Bergman, B., Larsson, G., Brismar, B., & Klang, M. (1987). Psychiatric morbidity and personality characteristics of battered women. *Acta Psychiatrica Scandinavica*, 76, 678-683.
- Bergman, B., Larsson, G., Brismar, B., & Klang, M. (1989). Battered wives and female alcoholics: A comparative social and psychiatric study. *Journal of Advanced Nursing*, 14, 727-734.
- Berk, R. A., Berk, S. F., Loseke, D. R., & Rauma, D. (1983). Mutual combat and other family violence myths. In D. Finkelhor, R. J. Gelles, G. T. Hotaling, & M. A. Straus (Eds.), *The dark side of families: Current family violence research* (pp. 197-212). Beverly Hills, CA: Sage.
- Bernadt, M. W., Mumford, J., & Murray, R. M. (1984). A discriminant-function analysis of screening tests for excessive drinking and alcoholism. *Journal of Studies on Alcohol*, 45, 81-86.

- Blair, K. A. (1986). The battered woman: Is she a silent victim? *Nurse Practitioner*, 11(6), 38, 40, 42-44, 47.
- Bland, R. C., Orn, H., & Newman, S. C. (1988). Lifetime prevalence of psychiatric disorders in Edmonton. *Acta Psychiatrica Scandinavica*, 77(Suppl. 338), 24-32.
- Bograd, M. (1982). Battered women, cultural myths and clinical interventions: A feminist analysis. *Women and Therapy*, 1(3), 69-77.
- Bowker, L. H., & Maurer, L. (1987). The medical treatment of battered wives. *Women and Health*, 12(1), 25-45.
- Bridges, K. W., & Goldberg, D. P. (1986). The validation of the GHQ-28 and the use of the MMSE in neurological in-patients. *British Journal of Psychiatry*, 148, 548-553.
- Bridges, K., & Goldberg, D. (1989). Self-administered scales of neurotic symptoms. In C. Thompson (Ed.), *The instruments of psychiatric research* (pp. 157-176). Chichester, England: John Wiley.
- Brinkerhoff, M. B., & Lupri, E. (1988). Interspousal violence. *Canadian Journal of Sociology*, 13, 407-434.
- Brismar, B., Bergman, B., Larsson, G., & Strandberg, A. (1987). Battered women: A diagnostic and therapeutic dilemma. *Acta Chirurgica Scandinavica*, 153, 1-5.
- Browne, A. (1987). *When battered women kill*. New York: Free Press.
- Browning, J., & Dutton, D. (1986). Assessment of wife assault with the Conflict Tactics Scale: Using couple data to quantify the differential reporting effect. *Journal of Marriage and the Family*, 48, 375-379.
- Broyles, R. W., Manga, P., Binder, D. A., Angus, D. E., & Charette, A. (1983). The use of physician services under a national health insurance scheme: An analysis of the Canada Health Survey. *Medical Care*, 21, 1037-1054.
- Bullock, L. F., & McFarlane, J. (1989). Birth-weight/battering connection. *American Journal of Nursing*, 89, 1153-1155.
- Bullock, L., McFarlane, J., Bateman, L. H., & Miller, V. (1989). The prevalence and characteristics of battered women in a primary care setting. *Nurse Practitioner*, 14(6), 47, 50, 53-54, 56.
- Bush, B., Shaw, S., Cleary, P., Delbanco, T. L., & Aronson, M. D. (1987). Screening for alcohol abuse using the CAGE questionnaire. *American Journal of Medicine*, 82, 231-235.

- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin.
- Campbell, J. C. (1986). Nursing assessment for risk of homicide with battered women. *Advances in Nursing Science*, 8(4), 36-51.
- Campbell, J. C. (1989). A test of two explanatory models of women's responses to battering. *Nursing Research*, 38, 18-24.
- Canada Health Survey. (1981). *The health of Canadians: Report of the Canada Health Survey* (Catalogue 82-538E). Ottawa, Ontario: Author.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Deogatis, L. R., Lipman, R. S., & Covi, L. (1973). The SCL-90: An outpatient psychiatric rating scale. *Psychopharmacology Bulletin*, 9, 13-28.
- Derogatis, L. R., Rickels, K., & Rock, A. F. (1976). The SCL-90 and the MMPI: A step in the validation of a new self-report scale. *British Journal of Psychiatry*, 128, 280-289.
- Dobash, R. E., & Dobash, R. (1979). *Violence against wives: A case against the patriarchy*. New York: Free Press.
- Domino, J. V., & Haber, J. D. (1987). Prior physical and sexual abuse in women with chronic headache: Clinical correlates. *Headache*, 27, 310-314.
- Drake, V. K. (1982). Battered women: A health care problem in disguise. *Image*, 14(2), 40-47.
- Edleson, J. L., & Brygger, M. P. (1986). Gender differences in reporting of battering incidents. *Family Relations*, 35, 377-382.
- Ewing, J. A. (1984). Detecting alcoholism: The CAGE questionnaire. *JAMA*, 252, 1905-1907.
- Finlay-Jones, R. A., & Murphy, E. (1979). Severity of psychiatric disorder and the 30-item General Health Questionnaire. *British Journal of Psychiatry*, 134, 609-616.
- Finley, B. (1981). Nursing process with the battered woman. *Nurse Practitioner*, 6(4), 11-13.
- Fortin, F. (1984). *Le syndrome post-ligature des trompes: Étude pilote. Rapport de recherche*, Université de Montréal. Subvention de Santé et Bien-être Social Canada.
- Fowler, F. J., Jr. (1984). *Survey research methods*. Beverly Hills, CA: Sage.

- Frey, J. H. (1983). *Survey research by telephone*. Beverly Hills, CA: Sage.
- Gayford, J. J. (1975). Wife battering: A preliminary survey of 100 cases. *British Medical Journal*, 1, 194-197.
- Gelles, R. (1972). *The violent home: A study of physical aggression between husbands and wives*. Beverly Hills, CA: Sage.
- Gelles, R. J. (1975). Violence and pregnancy: A note on the extent of the problem and needed services. *Family Coordinator*, 24, 81-86.
- Gelles, R. J. (1988). Violence and pregnancy: Are pregnant women at greater risk of abuse? *Journal of Marriage and the Family*, 50, 841-847.
- Gelles, R. J., & Straus, M. A. (1988). *Intimate violence: The causes and consequences of abuse in the American family*. New York: Simon & Schuster.
- Ghent, W. R., Da Sylva, N. P., & Farren, M. E. (1985). Family violence: Guidelines for recognition and management. *Canadian Medical Association Journal*, 132, 541-553.
- Gillis, A. T. (1991). A house where everything is discussed. *Vis-à-vis*, 8(4), 4-5.
- Goldberg, D. P., & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine*, 9, 139-145.
- Goldberg, W., & Carey, A. L. (1982). Domestic violence victims in the emergency setting. *Topics in Emergency Medicine*, 3, 65-76.
- Goldberg, W. G., & Tomlanovich, M. C. (1984). Domestic violence victims in the emergency department: New findings. *JAMA*, 251, 3259-3264.
- Greany, G. D. (1984). Is she a battered woman? A guide for emergency response. *American Journal of Nursing*, 84, 725-727.
- Haber, J. (1985). Abused women and chronic pain. *American Journal of Nursing*, 85, 1010, 1012.
- Haber, J., & Roos, C. (1984). Effects of spouse abuse and/or sexual abuse in the development and maintenance of chronic pain in women. *Pain*, 20(Suppl. 2), S187.
- Handelman, M., & Ward, W. (1976). *Battered women, emergency shelter and the law*. Windsor, Ontario: University of Windsor.
- Hatty, S. (1987). Woman battering as a social problem: The denial of injury. *Australian and New Zealand Journal of Sociology*, 23, 36-46.

- Health and Welfare Canada. (1989). *Health care related to abuse, assault, neglect and family violence: Guidelines*. Ottawa: Minister of Supply and Services.
- Helton, A. S., McFarlane, J., & Anderson, E. T. (1987). Battered and pregnant: A prevalence study. *American Journal of Public Health*, 77, 1337-1339.
- Hennekens, C. H., & Buring, J. E. (1987). *Epidemiology in medicine*. Boston: Little, Brown.
- Henton, J., Cate, R., Koval, J., Lloyd, S., & Christopher, S. (1983). Romance and violence in dating relationships. *Journal of Family Issues*, 4, 467-482.
- Hillard, P. J. A. (1985). Physical abuse in pregnancy. *Obstetrics and Gynecology*, 66, 185-190.
- Hopayian, K., Horrocks, G., Garner, P., & Levitt, A. (1983). Battered women presenting in general practice. *Journal of the Royal College of General Practitioners*, 33, 506-507.
- Hornung, C. A., McCullough, B. C., & Sugimoto, T. (1981). Status relationships in marriage: Risk factors in spouse abuse. *Journal of Marriage and the Family*, 43, 675-692.
- House of Commons Standing Committee on Health, Welfare and Social Affairs. (1982). *Inquiry into violence in the family*. Ottawa, Ontario: Queen's Printer of Canada.
- Interdisciplinary Project on Domestic Violence. (1988). *The other side of the mountain: Working together on domestic violence issues. Report 1: Summary of findings and conclusions*. Ottawa, Ontario: Author.
- Jaffe, P., Wolfe, D. A., Wilson, S., & Zak, L. (1986). Emotional and physical health problems of battered women. *Canadian Journal of Psychiatry*, 31, 625-629.
- Jorgensen, S. R. (1977). Social class heterogamy, status striving, and perceptions of marital conflict: A partial replication and revision of Pearlin's contingency hypothesis. *Journal of Marriage and the Family*, 39, 653-661.
- Jouriles, E. N., & O'Leary, K. D. (1985). Interspousal reliability of reports of marital violence. *Journal of Consulting and Clinical Psychology*, 53, 419-421.
- Kalmuss, D. S., & Straus, M. A. (1982). Wife's marital dependency and wife abuse. *Journal of Marriage and the Family*, 44, 277-286.

- Kearns, N. P., Cruickshank, C. A., McGuigan, K. J., Riley, S. A., Shaw, S. P., & Snaith, R. P. (1982). A comparison of depression rating scales. *British Journal of Psychiatry*, 141, 45-49.
- Kelsey, J. L., Thompson, W. D., & Evans, A. S. (1986). *Methods in observational epidemiology*. New York: Oxford University Press.
- Kennedy, L. W., & Dutton, D. G. (1987). *The incidence of wife assault in Alberta* (Edmonton Area Series Rep. No. 53). Edmonton: University of Alberta, Population Research Laboratory and Department of Sociology.
- Kennedy, L. W., & Dutton, D. G. (1989). The incidence of wife assault in Alberta. *Canadian Journal of Behavioural Science*, 21(1), 40-54.
- Kerouac, S., Taggart, M., Lescop, J., & Fortin, M. (1986). Dimensions of health in violent families. *Health Care for Women International*, 7, 413-426.
- King, M. (1986). At risk drinking among general practice attenders: Validation of the CAGE questionnaire. *Psychological Medicine*, 16, 213-217.
- Klecka, W. R. (1980). *Discriminant analysis*. Newbury Park, CA: Sage.
- Kurz, D., Olsen, K., Flaherty, E. W., & Wilcove, G. (undated). *Identification and intervention with battered women in hospital emergency departments*. Ottawa, Ontario: National Clearinghouse on Family Violence, Health and Welfare Canada.
- Kurz, D., & Stark, E. (1988). Not-so-benign neglect: The medical response to battering. In K. Yllö & M. Bograd (Eds.), *Feminist perspectives on wife abuse* (pp. 249-266). Newbury Park, CA: Sage.
- Lalu, N. M. (1991). *Sampling methods for telephone surveys* (Research Discussion Paper No. 74). Edmonton: University of Alberta, Department of Sociology.
- Lavrakas, P. J. (1987). *Telephone survey methods: Sampling, selection, and supervision*. Newbury Park, CA: Sage.
- Lewis, D. J. (1982). *A brief on wife battering with proposals for federal action*. Ottawa, Ontario: Canadian Advisory Council on the Status of Women.
- MacLeod, L. (1980). *Wife battering in Canada: The vicious circle*. Ottawa, Ontario: Canadian Advisory Council on the Status of Women.
- MacLeod, L. (1987). *Battered but not beaten: Preventing wife battering in Canada*. Ottawa, Ontario: Canadian Advisory Council on the Status of Women.

- Magellan, R. (1991, March 12). Violence in U.S. 'an epidemic as destructive as AIDS'. *Medical Post*, 27(10), 27.
- Maguire, G. P., Julier, D. L., Hawton, K. E., & Bancroft, J. H. J. (1974). Psychiatric morbidity and referral on two general medical wards. *British Medical Journal*, 1, 268-270.
- Malt, U. F. (1989). The validity of the General Health Questionnaire in a sample of accidentally injured adults. *Acta Psychiatrica Scandinavica*, 80(Suppl. 355), 103-112.
- Manga, P. (1978). *The income distribution effect of medical insurance in Ontario*. Toronto, Ontario: Ontario Economic Council.
- Manga, P. (1987). Equality of access and inequalities in health status: Policy implications of a paradox. In D. Coburn, C. D'Arcy, G. M. Torrance, & P. New (Eds.), *Health and Canadian society: Sociological perspectives* (2nd ed.) (pp. 637-648). Markham, Ontario: Fitzhenry & Whiteside.
- Manga, P., Broyles, R. W., & Angus, D. (1984). The use of hospital and physician services under a national health insurance program: An examination of the Canada Health Survey. In J. A. Boan (Ed.), *Proceedings of the Second Canadian Conference on Health Economics* (pp. 3-59). Regina, Saskatchewan: University of Regina.
- Mayfield, D., McLeod, G., & Hall, P. (1974). The CAGE questionnaire: Validation of a new alcoholism screening instrument. *American Journal of Psychiatry*, 131, 1121-1123.
- McGrath, P. E., Schultz, P. S., Culhane, P. O., & Franklin, D. B. (1980). *The development of a hospital protocol for the identification and treatment of battered women* (Domestic Violence Monograph No. 5). Rockville, MD: National Clearinghouse on Domestic Violence.
- McLeer, S. V., & Anwar, R. A. H. (1987). The role of the emergency physician in the prevention of domestic violence. *Annals of Emergency Medicine*, 16, 1155-1161.
- McLeer, S. V., & Anwar, R. (1989). A study of battered women presenting in an emergency department. *American Journal of Public Health*, 79, 65-66.
- McLeer, S. V., Anwar, R. A. H., Herman, S., & Maquiling, K. (1989). Education is not enough: A systems failure in protecting battered women. *Annals of Emergency Medicine*, 18, 651-653.
- Montgomery, S. A., & Asberg, M. (1979). A new depression scale designed to be sensitive to change. *British Journal of Psychiatry*, 134, 382-389.

- Morey, L. C., & Martin, P. R. (1989). Assessment of alcoholism and substance abuse. In S. Wetzler (Ed.), *Measuring mental illness: Psychometric assessment for clinicians* (pp. 163-181). Washington, DC: American Psychiatric Press.
- Morrison, L. J. (1988). The battering syndrome: A poor record of detection in the emergency department. *Journal of Emergency Medicine*, 6, 521-526.
- Myers, J. K., & Weissman, M. M. (1980). Use of a self-report symptom scale to detect depression in a community sample. *American Journal of Psychiatry*, 137, 1081-1084.
- Nuttall, S. E., Greaves, L. J., & Lent, B. (1985). Wife battering: An emerging problem in public health. *Canadian Journal of Public Health*, 76, 297-299.
- O'Leary, K. D., & Curley, A. D. (1986). Assertion and family violence: Correlates of spouse abuse. *Journal of Marital and Family Therapy*, 12, 281-289.
- Ontario Medical Association Committee on Wife Assault. (1988). *Ontario Medical Association reports on wife assault*. Ottawa, Ontario: National Clearinghouse on Family Violence, Health and Welfare Canada.
- Pagelow, M. D. (1984). *Family violence*. New York: Praeger.
- Post, R. D., Willett, A. B., Franks, R. D., House, R. M., Black, S. M., & Weissberg, M. P. (1980). A preliminary report on the prevalence of domestic violence among psychiatric inpatients. *American Journal of Psychiatry*, 137, 974-975.
- Rabins, P. V., & Brooks, B. R. (1981). Emotional disturbance in multiple sclerosis patients. Validity of the General Health Questionnaire (GHQ). *Psychological Medicine*, 11, 425-427.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Roberts, R. E., & Vernon, S. W. (1983). The CES-D: Its use in a community sample. *American Journal of Psychiatry*, 140, 41-46.
- Rosett, M., Weiner, L., & Edelin, K. (1981). Strategies for prevention of fetal alcohol effects. *Obstetrics and Gynecology*, 57, 1-7.
- Rounsaville, B. J. (1978). Battered wives: Barriers to identification and treatment. *American Journal of Orthopsychiatry*, 48, 487-494.
- Rounsaville, B., & Weissman, M. M. (1977-1978). Battered women: A medical problem requiring detection. *International Journal of Psychiatry in Medicine*, 8, 191-202.

- Saunders, D. G. (1986). When battered women use violence: Husband-abuse or self-defense? *Violence and Victims*, 1, 47-60.
- Saunders, D. G., & Azar, S. T. (1989). Treatment programs for family violence. In L. Ohlin & M. Tonry (Eds.), *Family violence* (pp. 481-546). Chicago: University of Chicago Press.
- Scheffé, H. H. (1953). A method of judging all contrasts in the analysis of variance. *Biometrika*, 40, 87-104.
- Schuler, C. (1991, February 10). Wife slayings show flaws in system - panel: Task force seeks solutions. *Edmonton Journal*, p. B3.
- Schumm, W. R., Martin, M. J., Bollman, S. R., & Jurich, A. P. (1982). Classifying family violence: Whither the woosle? *Journal of Family Issues*, 3, 319-340.
- Selkirk, D. (1987). Family violence: Opportunity for change. *Axon*, 9(2), 3-8.
- Siegel, S. (1956). *Nonparametric statistics: For the behavioral sciences*. New York: McGraw-Hill.
- Siemiatycki, J., Richardson, L., & Pless, I. B. (1980). Equality in medical care under national health insurance in Montreal. *New England Journal of Medicine*, 303, 10-14.
- Smith, M. D. (1986). Effects of question format on the reporting of woman abuse: A telephone survey experiment. *Victimology*, 11, 430-438.
- Smith, M. D. (1987). The incidence and prevalence of woman abuse in Toronto. *Violence and Victims*, 2, 173-187.
- Smith, M. D. (1989). *Woman abuse: The case for surveys by telephone*. North York, Ontario: York University, Department of Sociology and LaMarsh Research Program on Violence and Conflict Resolution.
- Snaith, R. P., & Taylor, C. M. (1985). Rating scales for depression and anxiety: A current perspective. *British Journal of Clinical Pharmacology*, 19, 17S-20S.
- SPSS Inc. (1988). *SPSS-X user's guide* (3rd ed.). Chicago, IL: Author.
- Stark, E., Flitcraft, A., & Frazier, W. (1979). Medicine and patriarchal violence: The social construction of a "private" event. *International Journal of Health Services*, 9, 461-493.
- Stark, E., Flitcraft, A., Zuckerman, D., Grey, A., Robison, J., & Frazier, W. (1981). *Wife abuse in the medical setting: An introduction for health personnel* (Domestic Violence Monograph No. 7). Rockville, MD: National Clearinghouse on Domestic Violence.

- Stephens, B. J. (1985). Suicidal women and their relationships with husbands, boyfriends, and lovers. *Suicide and Life-Threatening Behavior*, 15, 77-90.
- Strang, J., Bradley, B., & Stockwell, T. (1989). Assessment of drug and alcohol use. In C. Thompson (Ed.), *The instruments of psychiatric research* (pp. 211-237). Chichester, England: John Wiley.
- Straus, M. A. (1974). Leveling, civility, and violence in the family. *Journal of Marriage and the Family*, 36, 13-29.
- Straus, M. A. (1979). Measuring intra-family conflict and violence: Conflict Tactics (CT) Scales. *Journal of Marriage and the Family*, 41, 75-88.
- Straus, M. A., & Gelles, R. J. (1986). Societal change and change in family violence from 1975 to 1985 as revealed by two national surveys. *Journal of Marriage and the Family*, 48, 465-479.
- Straus, M. A., Gelles, R. J., & Steinmetz, S. K. (1980). *Behind closed doors: Violence in the American family*. New York: Anchor.
- Szinovacz, M. E. (1983). Using couple data as a methodological tool: The case of marital violence. *Journal of Marriage and the Family*, 45, 633-644.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.). New York: Harper & Row.
- Thompson, C. (1989). Anxiety. In C. Thompson (Ed.), *The instruments of psychiatric research* (pp. 127-155). Chichester, England: John Wiley.
- Tilden, V. P., & Shepherd, P. (1987). Increasing the rate of identification of battered women in an emergency department: Use of a nursing protocol. *Research in Nursing and Health*, 10, 209-215.
- Tolman, R. M. (1989). The development of a measure of psychological maltreatment of women by their male partners. *Violence and Victims*, 4, 159-177.
- Vieweg, B. W., & Hedlund, J. L. (1983). The General Health Questionnaire (GHQ): A comprehensive review. *Journal of Operational Psychiatry*, 14(2), 74-81.
- Walker, L. E. (1979). *The battered woman*. New York: Harper & Row.
- Walker, L. E. (1984). *The battered woman syndrome*. New York: Springer.
- Wigle, D. T., & Mao, Y. (1980). *Mortality by income level in urban Canada*. Ottawa, Ontario: Health and Welfare Canada.

Wilcox, L. F. (1991). Addictions and violence: Solving one doesn't solve the other. *Vis-a-vis*, 8(4), 1, 4.

Wilkins, R., & Adams, O. B. (1983). *Healthfulness of life: A united view of mortality, institutionalization, and non-institutionalized disability in Canada, 1978*. Montreal, Quebec: Institute for Research on Public Policy.

World Health Organization. (1989). *World health statistics annual*. Geneva, Switzerland: Author.

APPENDIX A

INTERVIEW SCHEDULE

TIME START: _____

FORM NO.: _____

TIME END: _____

TELEPHONE EXCHANGE: _____

INTERVIEWER: _____

CASE NO.: _____

INTERVIEWER INSTRUCTIONS:

If a man answers, ask if you may speak to his wife. If a woman answers (or when the woman comes to the phone), state: Hello, my name is _____ and I am a researcher in the Faculty of Nursing at the University of Alberta. We are presently conducting research regarding the problems women may experience in their marriages and with their health. If you are over 18 years of age and presently married or living in a common-law relationship, or have been in the past year, I hope you will agree to participate in this research. Your phone number was selected randomly and I do not know your name or address. All that is required of you is that you answer some questions about your marriage, particularly about how your husband handles conflict, and about your health over the telephone. It will only take about 10 to 15 minutes. If there are questions that you would prefer not to answer, please say so at any time during the interview.

1. a. What is your current marital status?

Married..... 01
Common-law..... 02
Separated..... 03
Divorced..... 04
Widowed..... 05
Other (Specify)..... 06 _____
Don't know..... 98
No response..... 99

2. a. In the past year have you had an appointment with a family doctor? (If separated/divorced, for the year in which couple was last together)

No..... 01 (go to 3)
Yes..... 02
Don't know..... 98
No response..... 99

- b. How many appointments did you have?
 Actual number.....
 Don't know..... 998
 No response..... 999
3. a. In the past year have you had to go to a hospital emergency room for a problem of your own?
 No..... 01 (go to 4)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. How many times did you go to an emergency room?
 Actual number.....
 Don't know..... 998
 No response..... 999
4. a. In the past year have you gone to a medi-centre for a problem of your own?
 No..... 01 (go to 5)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. How many times did you go to a medi-centre?
 Actual number.....
 Don't know..... 998
 No response..... 999
5. a. Have you spoken with a public or community health nurse about your health in the past year?
 No..... 01 (go to 6)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. How many times did you speak with a public or community health nurse?
 Actual number.....
 Don't know..... 998
 No response..... 999
6. a. In the past year have you had an appointment with a psychiatrist?
 No..... 01
 Yes..... 02
 Don't know..... 98
 No response..... 99

7. a. In the past year have you been hospitalized?
 No..... 01 (go to 8)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. How many days were you hospitalized?
 Actual number.....
 Don't know..... 998
 No response..... 999
8. a. Have you used any of the following in the past year?
- | | No | Yes | DK | NR |
|---------------------------------------|----|-----|----|----|
| chiropractor | 01 | 02 | 98 | 99 |
| pain clinic | 01 | 02 | 98 | 99 |
| psychologist | 01 | 02 | 98 | 99 |
| acupuncture | 01 | 02 | 98 | 99 |
| other health care services (Specify): | | | | |
-
9. a. Have you had a broken bone or bones in the past year?
 No..... 01 (go to 10)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. On how many different occasions have you had a bone or bones broken in the past year?
 Actual number.....
 Don't know..... 98
 No response..... 99
- c. Where on your body did this happen?
 (May answer more than once) (Circle up to three)
- | | |
|----------------------|----|
| hands or arms..... | 01 |
| legs or feet..... | 02 |
| hips..... | 03 |
| ribs..... | 04 |
| spine (back)..... | 05 |
| nose..... | 06 |
| skull..... | 07 |
| other (specify)..... | 08 |
| not applicable..... | 97 |
| don't know..... | 98 |
| no response..... | 99 |

10. a. Have you had a large bruise or bruises on your body in the past year?
- No..... 01 (go to 11)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. On how many different occasions have you had a bruise or bruises in the past year?
- Actual number..... _____
 Don't know..... 998
 No response..... 999
- c. Where on your body did this happen?
 (May answer more than once) (Circle up to three)
- hands or arms..... 01
 legs or feet..... 02
 abdomen (stomach)..... 03
 chest..... 04
 back..... 05
 neck..... 06
 face..... 07
 head..... 08
 other (specify)..... 09 _____

- not applicable..... 97
 don't know..... 98
 no response..... 99
11. a. Have you had a cut that needed stitches in the past year?
- No..... 01 (go to 12)
 Yes..... 02
 Don't know..... 98
 No response..... 99
- b. On how many different occasions have you had a cut that needed stitches in the past year?
- Actual number..... _____
 Don't know..... 998
 No response..... 999

- c. Where on your body did this happen?
(May answer more than once) (Circle more than one)
- | | |
|------------------------|----------|
| hands or arms..... | 01 |
| legs or feet..... | 02 |
| abdomen (stomach)..... | 03 |
| chest..... | 04 |
| back..... | 05 |
| neck..... | 06 |
| face..... | 07 |
| head..... | 08 |
| other (specify)..... | 09 _____ |
| not applicable..... | 97 _____ |
| don't know..... | 98 |
| no response..... | 99 |

12. a. Have you had a sprain or strain in the past year?
- | | |
|------------------|---------------|
| No..... | 01 (go to 13) |
| Yes..... | 02 |
| Don't know..... | 98 |
| No response..... | 99 |
- b. On how many different occasions have you had a sprain or strain in the past year?
- | | |
|--------------------|-------|
| Actual number..... | _____ |
| Don't know..... | 998 |
| No response..... | 999 |
- c. Where on your body did this happen?
(May answer more than once) (Circle up to three)
- | | |
|------------------------|----------|
| hands or arms..... | 01 |
| legs or feet..... | 02 |
| abdomen (stomach)..... | 03 |
| chest..... | 04 |
| back..... | 05 |
| neck..... | 06 |
| other (specify)..... | 07 _____ |
| not applicable..... | 97 _____ |
| don't know..... | 98 |
| no response..... | 99 |
13. a. Have you had a head injury in the past year?
- | | |
|------------------|---------------|
| No..... | 01 (go to 14) |
| Yes..... | 02 |
| Don't know..... | 98 |
| No response..... | 99 |

- b. What kind of head injury was it?
(Describe) (Up to two injuries)

not applicable..... 97
don't know..... 98
no response..... 99

14. a. Have you had a ruptured ear drum in the past year?

No..... 01
Yes..... 02
Don't know..... 98
No response..... 99

15. a. Have you had any other injuries in the past year?

No..... 01 (go to 16)
Yes..... 02
Don't know..... 98
No response..... 99

- b. What kind of injuries have you had?
(Describe type and location of injury) (May describe up to
three injuries)

not applicable..... 97
don't know..... 98
no response..... 99

16. a. How often do you have headaches?

Never..... 01 (go to 17)
Rarely..... 02
Occasionally..... 03
Frequently..... 04
Every day..... 05
Don't know..... 98
No response..... 99

- b. Would you describe the intensity of the headache that you usually have as:

Very slight..... 01
Mild..... 02
Moderate..... 03
Severe..... 04
Excruciating..... 05
Not applicable..... 97
Don't know..... 98
No response..... 99

- c. How often does your headache cause you to limit your physical activity?

Never..... 01
Rarely..... 02
Occasionally..... 03
Frequently..... 04
Almost always..... 05
Always..... 06
Not applicable..... 97
Don't know..... 98
No response..... 99

17. a. How often do you have backaches?

Never..... 01 (go to 18)
Rarely..... 02
Occasionally..... 03
Frequently..... 04
Every day..... 05
Don't know..... 98
No response..... 99

- b. Would you describe the intensity of the backache that you usually have as:

Very slight..... 01
Mild..... 02
Moderate..... 03
Severe..... 04
Excruciating..... 05
Not applicable..... 97
Don't know..... 98
No response..... 99

c. How often does your backache cause you to limit your physical activity?

Never..... 01
 Rarely..... 02
 Occasionally..... 03
 Frequently..... 04
 Almost always..... 05
 Always..... 06
 Not applicable..... 97
 Don't know..... 98
 No response..... 99

18. a. Have you had a miscarriage since you have been living with your present partner? (If divorced or separated, while living with former partner)

No..... 01 (go to 19)
 Yes..... 02
 Don't know..... 98
 No response..... 99

b. How many miscarriages have you had since living with your present partner? (If divorced or separated, while living with former partner)

Actual number..... _____
 Don't know..... 998
 No response..... 999

19. a. How many different kinds of prescription medicines have you used in the past month?

Actual number..... _____
 Don't know..... 998
 No response..... 999

20. a. Have you taken any of the following medicines in the past month?

	No	Yes	DK	NR
pain killers	01	02	98	99
(non prescription)				
prescription pain killers	01	02	98	99
sleeping pills	01	02	98	99
antidepressants	01	02	98	99
tranquilizers	01	02	98	99
any other medication (specify)	_____			

21. a. How old did you turn on your last birthday?

Actual age..... _____
 Don't know..... 998
 No response..... 999

22. a. How long have you lived with your present partner? (If divorced or separated, how long with former partner)
- | | |
|--------------------|-------|
| Actual number..... | _____ |
| Don't know..... | 98 |
| No response..... | 99 |
23. a. How many children do you have?
- | | |
|--------------------|-------|
| Actual number..... | _____ |
| Don't know..... | 98 |
| No response..... | 99 |
24. a. How many children are currently living with you?
- | | |
|--------------------|-------|
| Actual number..... | _____ |
| Don't know..... | 98 |
| No response..... | 99 |
25. a. Are you presently working full-time, part-time, going to school, keeping house, or something else? (f divorced/separated...what doing while with former partner)
- | | |
|------------------------|----|
| employed full-time.... | 01 |
| employed part-time.... | 02 |
| unemployed..... | 03 |
| retired..... | 04 |
| in school..... | 05 |
| keeping house..... | 06 |
| other (e.g. disabled). | 07 |
| don't know..... | 98 |
| no response..... | 99 |
26. a. Is your partner presently working full-time, part-time, going to school, keeping house, or something else? (If divorced or separated, what was former partner doing when living together)
- | | |
|------------------------|----|
| employed full-time.... | 01 |
| employed part-time.... | 02 |
| unemployed..... | 03 |
| retired..... | 04 |
| in school..... | 05 |
| keeping house..... | 06 |
| other (e.g. disabled). | 07 |
| don't know..... | 98 |
| no response..... | 99 |

27. a. What is the highest level of education that you completed?

No schooling..... 01

ELEMENTARY

incomplete..... 02

complete..... 03

JUNIOR HIGH

incomplete..... 04

complete..... 05

HIGH SCHOOL

incomplete..... 06

complete..... 07

NON-UNIVERSITY (voc/tech; nsg)

incomplete..... 08

complete..... 09

UNIVERSITY

incomplete..... 10

diploma/certificate... 11

bachelor's degree..... 12

professional degree... 13

master's degree..... 14

doctorate..... 15

Don't know..... 98

No response..... 99

28. a. What is the highest level of education that your (former) partner completed?

(Code same as previous question)

29. a. What was the total income of you and your husband for this past year before deductions and taxes. (If divorced or separated...the last year you were together). I do not need the exact amount, just the general category. Would it be...

Less than \$10,000..... 01

Between \$10,000 and \$19,999..... 02

Between \$20,000 and \$29,999..... 03

Between \$30,000 and \$39,999..... 04

Between \$40,000 and \$49,999..... 05

Between \$50,000 and \$59,999..... 06

Between \$60,000 and \$69,999..... 07

Between \$70,000 and \$79,999..... 08

More than \$80,000..... 09

Don't know..... 98

No response..... 99

30. a. How much of this total income did you contribute in this past year (or last year of marriage or relationship) before deductions and taxes?

Less than \$10,000.....	01
Between \$10,000 and \$19,999.....	02
Between \$20,000 and \$29,999.....	03
Between \$30,000 and \$39,999.....	04
Between \$40,000 and \$49,999.....	05
Between \$50,000 and \$59,999.....	06
Between \$60,000 and \$69,999.....	07
Between \$70,000 and \$79,999.....	08
More than \$80,000.....	09
Don't know.....	98
No response.....	99

APPENDIX B

GENERAL HEALTH QUESTIONNAIRE

INTERVIEWER READS:

I would like to know if you have had any medical complaints, and how your health has been in general, over the past year. Please answer all the questions by saying "better than usual," "same as usual," "worse than usual," or "much worse than usual." I am interested in your complaints over the past year, not those that you had in the past.

INTERVIEWER CODE:

Better than usual	01
Same as usual	02
Worse than usual	03
Much worse than usual	04
Don't know	98
No response	99

In the past year have you:

1. Been feeling perfectly well and in good health?
01 02 03 04 98 99
2. Been feeling in need of some medicine to pick you up?
01 02 03 04 98 99
3. Been feeling run down and out of sorts?
01 02 03 04 98 99
4. Felt that you are ill?
01 02 03 04 98 99
5. Been getting any pains in your head?
01 02 03 04 98 99
6. Been getting a feeling of tightness or pressure in your head?
01 02 03 04 98 99
7. Been having hot or cold spells?
01 02 03 04 98 99
8. Lost much sleep over worry?
01 02 03 04 98 99
9. Had difficulty staying asleep?
01 02 03 04 98 99

10. Felt constantly under strain?
01 02 03 04 98 99

11. Been getting edgy and bad-tempered?
01 02 03 04 98 99

12. Been getting scared or panicky for no good reason?
01 02 03 04 98 99

13. Found everything getting on top of you?
01 02 03 04 98 99

14. Been feeling nervous and uptight all the time?
01 02 03 04 98 99

15. Been managing to keep yourself busy and occupied?

More so
than
usual

Same as
usual

Rather less
than usual

Much less than
usual

16. Been taking longer over the things you do?

Quicker
than
usual

Same as
usual

Longer than
usual

Much longer
than usual

17. Felt on the whole you were doing things well?

Better
than
usual

About the
same

Less well than
usual

Much less well

18. Been satisfied with the way you've carried out your task?

More sat-
isfied

About
same as
usual

Less satisfied
than usual

Much less
satisfied than
usual

19. Felt that you are playing a useful part in things?

More so
than
usual

Same as
usual

Less useful
than usual

Much less
useful

20. Felt capable of making decisions about things?

More so
than
usual

Same as
usual

Less so than
usual

Much less
capable

21. Been able to enjoy your normal day-to-day activities?

More so
than
usual

Same as
usual

Less so than
usual

Much less than
usual

22. Been thinking of yourself as a worthless person?

Not at
all

No more
than
usual

Rather more
than usual

Much more than
usual

23. Felt that life is entirely hopeless?

Not at
all

No more
than
usual

Rather more
than usual

Much more than
usual

24. Felt that life isn't worth living?

Not at
all

No more
than
usual

Rather more
than usual

Much more than
usual

25. Thought of the possibility that you might do away with yourself?

Definite-
ly not

I don't
think so

Has crossed my
mind

Definitely have

26. Found at times you couldn't do anything because your nerves were too bad?

Not at
all

No more
than
usual

Rather more
than usual

Much more than
usual

27. Found yourself wishing you were dead and away from it all?

Not at
all

No more
than
usual

Rather more
than usual

Much more than
usual

28. Found that the idea of taking your own life kept coming into your mind?

Definite-
ly not

I don't
think so

Has crossed my
mind

Definitely has

APPENDIX C

CAGE

1. Have you ever felt you ought to Cut down on your drinking in the past year?
No..... 01
Yes..... 02
Don't know..... 98
No response..... 99
2. In the past year have people Annoyed you by criticizing your drinking?
No..... 01
Yes..... 02
Don't know..... 98
No response..... 99
3. In the past year have you felt bad or Guilty about your drinking?
No..... 01
Yes..... 02
Don't know..... 98
No response..... 99
4. In the past year have you had a drink first thing in the morning to steady your nerves or get rid of a hangover (Eye-opener)?
No..... 01
Yes..... 02
Don't know..... 98
No response..... 99

APPENDIX D

THE CONFLICT TACTICS SCALES

INTERVIEWER READS:

No matter how well a couple gets along, there are times when they disagree on major decisions, get annoyed about something the other person does, or just have spats or fights because they're in a bad mood or tired for some other reason. They also use many different ways of trying to settle their differences. I'm going to read a list of some things that your husband (partner) might have done when you had a dispute, and would like you to tell me for each one how often he did it in the past year.

INTERVIEWER: CIRCLE EACH ITEM:

Never.....	00
Once.....	01
Twice.....	02
3-5 times.....	03
6-10 times.....	04
11-20 times.....	05
more than 20 times.....	06
don't know.....	98
no response.....	99

1. Discussed the issue calmly.....
00 01 02 03 04 05 06 98 99
2. Got information to back up his side of things..
00 01 02 03 04 05 06 98 99
3. Brought in or tried to bring in someone to help settle things..
00 01 02 03 04 05 06 98 99
4. Insulted or swore at you.....
00 01 02 03 04 05 06 98 99
5. Sulked and/or refused to talk about it.....
00 01 02 03 04 05 06 98 99
6. Stomped out of the room or house (or yard).....
00 01 02 03 04 05 06 98 99
7. Cried.....
00 01 02 03 04 05 06 98 99
8. Did or said something to spite you.....
00 01 02 03 04 05 06 98 99

9. Threatened to hit or throw something at you....
00 01 02 03 04 05 06 98 99
10. Threw or smashed or hit or kicked something....
00 01 02 03 04 05 06 98 99
11. Threw something at you.....
00 01 02 03 04 05 06 98 99
12. Pushed, grabbed or shoved you.....
00 01 02 03 04 05 06 98 99
13. Slapped or spanked you.....
00 01 02 03 04 05 06 98 99
14. Kicked, bit or hit you with a fist.....
00 01 02 03 04 05 06 98 99
15. Hit or tried to hit you with something.....
00 01 02 03 04 05 06 98 99
16. Beat you up.....
00 01 02 03 04 05 06 98 99
17. Choked you.....
00 01 02 03 04 05 06 98 99
18. Threatened you with a knife or gun.....
00 01 02 03 04 05 06 98 99
19. Used a knife or gun.....
00 01 02 03 04 05 06 98 99
20. Are there any other things that your husband did when you had a dispute? (DESCRIBE) (Record up to three tactics):

I really appreciate the time you have taken to complete this survey. I'd like to assure you that everything you have told me will remain strictly confidential. As you have gathered from the questions, we are interested in how couples deal with conflict in their relationships, and how this might affect a woman's health. Now that you have had a chance to think about the topic, is there anything you would like to add to what we have discussed? (DESCRIBE):

APPENDIX E

POWER CALCULATIONS

As suggested in the review of the pertinent literature, it was difficult to predict whether abused women differed from non-abused women in terms of the variables under study, and more specifically, the magnitude of the differences that existed. However, the probability of yielding statistically significant results, given the anticipated sample size of 400 respondents with 55 physically abused women and some estimates of "effect sizes," for the data that were to be obtained from the CAGE questionnaire and the General Health Questionnaire was calculated (Cohen, 1988).

Jaffe et al. (1986) found that physically abused women differed significantly from non-abused women on three of the four subscales of the General Health Questionnaire. Using Cohen's (1988) power tables for the t-test for means, accepting the effect size uncovered in the work of Jaffe et al. (see Table 47), and assuming a sample size of 55 in each group and a significance level of .05 (two-tailed), resulted in expected power of approximately 98% for each subscale (somatic complaints, anxiety and insomnia, and depression).¹

Were the findings of Jaffe et al. (1986) a valid indication of the effect size? Although not provided in the published report, confidence intervals for the difference in means of the subscales were calculated

¹Jaffe et al. (1986) did not provide the standard deviation of the subscale scores for the combined sample, thus the average standard deviation for the physically abused women and the comparison women was used to calculate the effect size.

as follows: (a) the difference in means for the subscale, somatic complaints was found to be $5.2 + 1.5$; (b) anxiety and insomnia: $6.85 + 1.6$; and (c) depression: $3.45 + 1.3$. The researcher took a conservative position and assumed that the lower limit was a better indication of the true effect size, assumed a significance level of .05 and a sample size of 55 physically abused women, and continued to obtain expected power greater than 98%, with the exception of the depression subscale. In this case, power of approximately 75% was expected to be obtained.

Table 48
Mean Scores on the General Health Questionnaire
Reported by Jaffe et al. (1986)

Subscale	Abused women (N=56)		Non-abused women (N=89)	
	Mean	SD	Mean	SD
Somatic complaints	8.96	5.65	3.76 [—]	3.27
Anxiety & insomnia	11.55	5.56	4.70 [—]	4.14
Social Dysfunction	7.51	5.06	6.53	3.00
Depression	5.15	5.47	1.70 [—]	2.64
Total Score	33.07	17.09	16.61 [—]	10.00

[—]p < .001

In terms of alcoholism, the previous research findings were equivocal in determining whether a difference existed between physically abused women and non-abused women. Bland et al. (1988) interviewed 3,258 randomly selected household residents of Edmonton and found that

life time prevalence of alcohol abuse/dependence in women aged 18 years and older was 6.7% (S.E. = 0.6). The sample in this study was limited to those who were, or who in the previous year had been, in a marital relationship, which made it a subgroup of the Bland et al. target population. However, Bland et al. found little difference in the prevalence of alcohol abuse/dependence between those who were single and those who were widowed, separated, or divorced. Thus, it seemed reasonable to expect a similar prevalence rate.

Based on the approach described in Kelsey, Thompson, and Evans' (1986) monograph, the researcher calculated the power for detecting possible differences in the prevalence of alcoholism between physically abused women and non-abused women. Based on Kennedy and Dutton's (1987) study, it was assumed that for every physically abused woman in Edmonton, there were six who were not abused. With an overall prevalence of alcohol dependence of 6.7% and a proposed sample of 55 physically abused women, if the difference between the groups in the proportion of those with alcohol dependence was actually 6.7% (odds ratio = 2.0) and the significance level was set at 5%, then the corresponding power was calculated to be 45%. Based on the same assumptions and standards, the power for detecting a 10% difference in the proportion of those with alcohol dependence (odds ratio = 2.7) was calculated to be approximately 76% and the power was calculated to be 93% for a 13.4% difference (odds ratio = 3.5).

Power calculations were not possible for the data that were collected from the questionnaire designed to elicit information about physical health problems and health care utilization patterns because

the overall prevalence rates were unknown and no estimates of the "effect sizes" were available. However, the anticipated sample size was considered large enough to detect "medium effects" (Cohen, 1988). For example, for a significance test of a difference in means at $\alpha = .05$ with a sample of 55, the effect size (or the standardized difference in means) must be .55 if power is to be .80. Thus, the means must differ by at least one half of one standard deviation.

APPENDIX F

COMMUNITY RESOURCES

WIN House (Shelter for battered women; Edmonton).....	479-0058
A Safe Place (Shelter for battered women; Sherwood Park).....	464-7233
Distress and Suicide Line.....	424-4252
Child Abuse Hot Line.....	0 (ask for Zenith 1234)
Community and Social Service Information.....	424-3242
Emergency Social Services.....	427-3390
Sexual Assault Centre.....	423-4121
Police.....	423-4567
Alberta Alcohol & Drug Abuse Commission.....	427-4291